The Builder.

SATURDAY, MARCH 18, 1854.

AT last the PANOPTICON, in Leicester-square, is open for its purposes, and we may congratulate the architect, Mr. T. Hayter Lewis, on the completion of what must have been a work of much labour. A large crowd filled the building on the 16th, and the general effect was certainly very satisfactory. In 1851 we gave a plan of the building, and a view of the intended elevation,* and these have been carried out without material alteration, excepting as regards the dome, for which glass and iron were at that time proposed. We afterwards printed a paper by the architect, containing details of the construction and decoration of the building,† and in our present number will be found a view of the interior.‡ We may briefly repeat that the hall is 98 feet in diameter, the dome 72 feet, and the central light in the dome 32 feet in diameter. The total cubic contents of the hall and of the recesses for the boxes are about 500,000 feet. The superficial quantity of light is equal to about 1,300 feet of horizontal light, or 1 foot to every 385 cubic feet, and this is found sufficient.

Mr. Lewis has bestowed much pains on the decorations, the whole of which, with the exception of the paintings on the flat ceilings, were designed by him. The latter were executed by Messrs. Harland and Fisher, decorators. Mr. Lewis had early determined to put in the chief part of the decoration in positive colours. To get an aërial effect, the mode usually adopted in decorating an apartment is to get lighter in tone towards the top. In this case, however, it was thought necessary, as all the light was at the top, to get a mass of colour there, and the fear was lest it should have the effect of bringing the ceiling down. The plan on which the architect proceeded, to use his own words, was this:—"I put in the ground of the dome of a deep blue, beginning with the most intense colour at the bottom, and carrying it up lighter as it approached the top: the projecting faces of the ornaments were put in of a deep red, lightened like the blue, and the relieved edges were left white. This was sufficient to separate the positive colours on the one side, the ornaments being seen in profile; but on the other side the edges were hidden by the perspective, and the positive colours would have been thus seen directly against each other. To obviate this harshness, I had at first left a light margin round the outer edges, but eventually an edging of gold was put all round, and this has quite answered the purpose. This free use of gilding made me apprehensive of producing a gaudy effect; and numerous experiments were made, with a view of testing what comparative amount of gilding would best harmonise with certain proportions of the primary colours. I searched through every work that I could think of, but could find no experiments to demonstrate this." It is clear, for many reasons, that gilding does not take the place of yellow: for instance—if gold leaf be held up against the light, the yellow is lost, and a brilliant green appears. If a layer of gold leaf be driven into glass or paper by a violent electric shock, the gold is resolved into almost its ultimate atoms, nearly disappears, and a purple ground results. But a more practical proof is given by the effect of the mosaics in the Italian churches; these are commonly of the deepest positive colours, brought out strongly on a gold ground: were this gold exchanged for yellow, there can be no question that the effect would be harsh and gaudy in the highest degree; yet there is none of that effect produced by the gold, which only forms a rich and harmonious background. If a red ornament be put upon a blue ground, the effect is harsh; separate them by a light line, and this effect is removed: a gilt edging does the same, but a yellow will not, unless very light.

In trying experiments, to form white light (as nearly as possible) with blue, red, and gold, the results contradicted the received theory. The proportions usually considered necessary for making white light, which are adopted at the Government School of Design, are taken from Field's work, published in 1835, and are yellow 3, red 5, and blue 8 parts. But it was here found that the proportions are red 3, yellow 5, and blue 8, or in 100 parts, red 19, yellow 31, blue 50. Trying gold in the same way, the red, gold, and blue neutralized each other in the proportions of 15, 55, and 30; the gold thus taking one-third from the blue, and one-fourth from the red. By gas-light, the yellow tint told powerfully, and the red, yellow, and blue were as 12, 42, and 46; the red, gold, and blue as 9, 66, and 25, an immense difference. "Now, this would seem clearly to prove that, with ordinary positive colours, at least one-half of the surface by day and two-thirds by gas-light might be gilt without producing a gaudy effect."

Mr. John Willson, of Southwark, was the builder: the ironwork was executed by Messrs. Grissell: the chandeliers (partly designed by the architect, and partly by Mr. Brock) were made by Messenger, of Birmingham. The business of warming the building was entrusted to Mr. Goldsworthy Gurney. It is effected by a "warming battery," constructed by connecting a series of about fifty zinc plates, of 10 inches by 8, with a copper or iron tube which passes through the centre of the plates: these plates are arranged about half an inch asunder, at right angles with the tube, thus presenting the appearance of a galvanic battery. The tube is connected with an iron pipe, leading to a boiler, from which steam passes into it. By this means the centre tube and the plates attached are heated, and communicate warmth to the air passing over their surface. The air is thus rarified, and then, ascending through gratings into the hall, diffuses a uniform temperature throughout the whole building, being replaced as rapidly as it rises by the cold air below. The batteries may be connected in groups, or divided over a building. In the Panopticon there are two groups of sixteen each in the basement, which are found sufficient, we are told, to warm the whole of the rotunda.

The cost was small. In such an arrangement it is of course necessary to prevent the possibility of the air being burnt by remaining in contact with an overheated pipe. To cool the air, the fountain in the centre of the hall will be put into operation two or three times during the day: this has seventeen jets, and the water can be thrown up, by a pneumatic apparatus, 90 feet, from an artesian well, 346 feet deep. The decorations are in enamelled slate, by Mr. Magnus, with glass mosaic enrichments, by Mr. Stevens. The green and blue do not go well together. Some of our readers may find it worth while to look at the Derbyshire alabaster, which has been used in parts of the building.

The exterior presents a larger amount of coloured decoration than has yet been attempted in our streets; its duration will be matter for notice. Much of it consists in tiles, prepared by Mr. Minton. These were at first unglazed, but it was found these would not wash: glazed tiles were, therefore, introduced. The entrance porch is of Ransome's artificial stone. The iron portcullis here is worth notice. The escutcheons by the way, which form a prominent feature in the front, are those of Bacon, Watt, Barry the painter, Shakspeare, Herschel, Goldsmith, Newton, Davy, and Purcell the composer, together with the Royal arms, and the bearings adopted by the Panopticon itself.

The objects of the institution, we suppose, are understood by all. The charter says it is "to exhibit and illustrate, in a popular form, discoveries in science and art, to extend the knowledge of useful and ingenious inventions, to promote and illustrate the application of science to the useful arts; to instruct, by courses of lectures, to be demonstrated and illustrated by instruments, apparatus, and other appliances, all branches of science, literature, and the fine and useful arts; to exhibit various branches of the fine and mechanical arts, manufactures, and handicrafts, by showing the progress to completion in the hands of the artizan and mechanic; to exhibit the productions of nature and art, both British and foreign;" and to do a variety of other useful and agreeable things. We hope the committee will always bear their real purpose in mind. The name (from the Greek *pan*, all, and *optomai*, I see), was originally given, if we remember rightly, by Jeremy Bentham to a prison on the radiating system designed by his brother, wherein the inspector could see the prisoners without being seen himself. We hope the Panopticon of our day will prove one of those educational levers which will gradually lessen the necessity for bestowing thought on any prisons at all.

We will not now attempt any description of the various fittings of the building.

An ascending-carriage to take visitors to the photographic rooms has been constructed by Messrs. Bunnett and Co. This machine consists first of a column composed of cast and wrought iron of the entire height of the room (seen on the left side of our engraving). Around the shaft is suspended, by means of four ropes, an ornamental carriage capable of holding eight persons. The entire weight of the carriage and its contents is balanced by a counterpoise in the interior of the column attached to the four ropes suspending the carriage, and free to move through the entire length of the column. Underneath the counterpoise is secured a strong rope connected at the other end to a wallower, firmly fixed on a spindle, to which is attached a worm wheel, worked by a strong wrought-iron worm. Motion is communicated to the carriage by an arrangement of pulleys carried on a spindle, on one end of which is placed a bevel wheel, geared into another fixed on the worm shaft.

There is a glass cistern to exhibit a diving apparatus: various machines from Mr. Whitworth and others, including the universal shaping and planing machine, and Brock's vertical sawing machine, will be found; together with the largest electrical machine ever constructed, and a battery of corresponding power. For music there is an organ of great size and compass, exceeding, it is said, every other in the metropolis; and art is represented by the works of several of our best sculptors.

We have now to see how the directors will use the means at their command.

* Vol. ix. p. 202. † Vol. xi. pp. 290 and 308. ‡ See p. 143.

THE LOUVRE AND THE TUILERIES UNITED.*

THIRD EPOCH, OR THE EXTENSION.

HAVING stopped Le Vau, Colbert determined to throw open the whole matter to public competition, and the architects of Paris were invited to send in designs. It appeared, however, that although the professional brethren of Le Vau had been willing and ready to prove, by very sound arguments and criticisms, the defects of Le Vau's design, they were incompetent to conceive others of superior merit, and they were rejected. But there was an eminent physician, a mere amateur of art, who submitted a project, which, novel in idea, bold in conception, and

* See p. 129, *ante*. For "Le Mesurier" read "Le Mercier."

dignified in character, seemed to equal the expectations of the magnificent Louis XIV. and his minister. Claude Perrault, supported by the personal influence of his brother Charles, who was secretary to Colbert, was fortunate enough to have his plan regarded with great favour, particularly as Le Vau's, which had been sent to Rome to Nicolas Poussin to submit to the judgment of the architects there, had been generally condemned. Then the artists of Italy were invited to submit designs for the completion of the Louvre; and although numerous projects were sent in, still it appeared that the Italian artists, yielding to too lively and irregulated a fancy, did not limit themselves to practical ideas, but gave themselves up to fantastic notions, which did not fulfil any of the conditions and restrictions required by the actual state of the building.

Louis XIV. and his advisers, disappointed at this result, and distrusting their own judgment as to the design of their own countryman Perrault, a physician and not an architect by profession, were anxious to try whether the palace of the capital of France might not find its architect, worthy of S. Peter's by the enchanting porticoes of its fore-court, and had embellished Rome and other parts of Italy by conceptions of the highest class. Rome was essentially the republic of the fine arts in all periods. Sculptor, decorator, painter, or what not,—every one conceived himself capable of being an architect; and Rome owes some of its most remarkable, though, perhaps, not its most beautiful monuments to men who, without going through the preparatory ordeal of professional study and apprenticeship, had the courage —perhaps I should say temerity—to think themselves competent,—prepared designs, and by favour were appointed to execute them.

Bernini, then in the ascendant, had certainly, by his colonnade of S. Peter's, the Baldachino, and staircase of the Vatican, and the Church of l'Arricia, proved that he combined fancy with judgment, skill, and taste, to a very eminent degree. His reputation dazzled the French king; and Bernini was invited to come to Paris to see the Louvre, and prepare a design. The cavaliere anticipated a Cæsar's victory, and the "*veni, vidi, vici*" result of the great Roman. His journey to Paris was a triumphal progress. Deputations went out to meet him with speeches and memorials, as he approached the principal cities of Italy and France. When he neared Paris, an officer of the Court offered him the greetings of the *Grand Monarque*, and a royal equipage and princely retinue conducted the no less illustrious artist to the anticipated scene of his future triumphal glory, where a noble mansion and munificent allowances awaited him and his assistants. But although caressed by the king and Colbert and the courtiers around the royal presence, the noble-minded Bernini found that there were attacks which genius, generosity, and frankness could not resist. The men he was brought to supplant called in question his talent, caricatured and maligned his intentions, defamed his works: a tide of defamation set in upon him. Under such unexpected malignant persecution, his imagination left him; he made a design, given in Durand's Parallel, which too much ignored all that had been done before. Although remarkable for simplicity, and nobleness of plan, and breadth of effect in the elevations, it certainly did not answer the expectation formed, and he soon left Paris disappointed, yet not without munificent tokens of the regard and esteem of Louis XIV. and his courtiers, who admired his brilliant talents, and respected his fine personal character.

Perrault then resumed the place which his previous success had gained him. His plans were adopted, and on the 17th October, 1665, Louis XIV. laid the first stone with great ceremony; and so great had become the impatience to which all the above-mentioned obstacles had given rise, that the works were commenced, and carried on with such order, that the new façade with the colonnade was completed in five years. It would seem that Perrault had adhered to the plan originally laid out by Le Mercier and carried on by Le Vau, and had merely increased the depth of the mass of buildings on the south and east sides of the court. I shall not stop to describe the features of Perrault's design, so well known to those who have visited Paris and admired the noble colonnade of the Louvre. I shall only allude to one remarkable evidence of the character of the execution. The two inclined cornices of the central pediment consist each of a single block of stone, 54 French feet long, 8 feet broad, and 18 inches deep. Practical men will understand the difficulty of raising such colossal masses 100 feet high and setting them in their place; and it is but just to bear this testimony to the architects of this period, that the constructions executed for Louis XIV. though carried on with extreme haste, are of the most solid, durable, and substantial nature: they were composed of the best materials, set out with all the most intricate skill of their celebrated science of the "*coupe des pierres.*" I inspected a portion of the grand flight of steps of the terraces of Versailles with my friend Mons. Nepveu, under whose direction that palace, during the reign of Louis Philippe, underwent considerable alterations and received extensive additions. That gentleman pointed out to me the extreme care, regardless of expense, with which the constructions generally of Louis XIV. were executed, and he assured me that the whole palace was carried out with the like scientific skill and attention.

The Louvre, by 1671, received its external coating of the colonnade, and had had 380,000*l.* expended upon this new part, without receiving any of the internal fittings: in fact, we may consider that Perrault had laid out an amount equal to 800,000*l.* of our time on the mere carcase, as it were, of his operations during these eight years. But a new fancy, and that one no trifling project, had been begun about the same time as the Louvre—I mean, the new Palace of Versailles, where Louis XIV. wished to create a new city and palace for the residence of himself and courtiers, in the midst of a sandy barren desert. In twenty-seven years Versailles absorbed 3,246,000*l.* money of that period, which we may consider equal to seven millions of the present time. About 900,000*l.* of our money were expended in the year 1686 alone. This new project cast into the shade the old Louvre of his ancestors, and as the purse, even of Louis XIV. could not bear the continued drain of two such palaces, the Louvre was left unfinished as it was, little more than a bare carcase.

This state of neglect continued for seventy or eighty years, until the middle of the last century, when the Louvre, instead of being a complete palace, with its internal fittings duly in order and a degree of arrangement prevailing, was but a mass of incoherent divisions, appropriated to various incongruous uses; devoid of the finishings usual even in ordinary dwellings, many of the windows unglazed, nay, unsashed; in parts without roof; portions occupied as warehouses and stables, or used for ateliers by painters, sculptors, modellers, and various trades, and even for baser purposes. In some parts on the north side private dwellings were attached to the very walls. Mons. de Marigny, superintendent of the royal buildings, remedied many of the gross abuses to which the Louvre had been subjected. Mons. Gabriel, the most celebrated architect of that period, and who erected the elegant "*garde meuble*" in the "Place de la Concorde," was charged with the completion of the façades and other works, which he carried on with great zeal and taste; and after his death Soufflot continued the operation. But the usual fate of this unfortunate palace never abandoned it; and after a few years the energy of reparation and completion relaxed, and this noble building, which, during the 120 years of the joint reigns of Louis XIV. and XV. had been begun, left off, and resumed, abandoned again and again, was still, when Louis XVI. mounted the throne, an incomplete palace, and almost as uninhabitable as when Mons. de Marigny commenced the Herculean task of cleaning out the Augean stable. The sad misfortunes of Louis XVI. and the horrors of the French revolution supervened, put a stop to all public works, whether useful or ornamental, and matters resumed their usual state of chaotic disorder, leaving the occupation of its corridors, halls, and chambers to the chance of the most violent, daring, and ungovernable "*sans culotte*," who claimed a portion for his right, as a citizen privilege of "first come first served." It was as a town taken by storm.

FOURTH EPOCH, OR THE IMPERIAL.

At length Napoleon Bonaparte was declared emperor in 1804, the star of the conqueror revived the past glories of the Tuileries and the Louvre, and a new era opened upon these palaces. The most valued spoils of his Italian victories consisted in the treasures of art which he directed to be transported to Paris; but where were they to be placed? The vast scale of accommodation which the Louvre offered proved to be peculiarly adapted for the purpose, and M. Raimond, architect, was directed to prepare the halls and chambers to receive the new acquisitions—a vast and difficult operation, which he carried on with much ability and rapidity until his death in 1805. He was succeeded by Messrs. Percier and Fontaine, who had to reconcile the various incoherent parts which existed in the elevations of the different sides of the court—to add in one part and to suppress in another; and they, with consummate skill, at length completed the court in about twenty-four years' time, giving it that harmonious *ensemble* which it at present offers, and which seems to be the result,—not of several ages, each with its peculiar style,—not of numerous architects with different views and various tastes,—but almost as though it were of one period and of one master-mind. Thus the completion of the Louvre, both with regard to its structure and decoration, was accomplished within the first thirty years of the present century. It is not my intention to enter upon a critical review of the discrepancies of style, arrangement, or taste in the various parts of the Louvre. It appears rather a matter of congratulation than of criticism, when we consider that, amidst all the fatalities of its career, it should have escaped a total shipwreck; and that the noblemindedness of great men of state, and the exquisite skill of her architects, and their respect for the labours of their predecessors, should, under such obstacles, at length have preserved and handed down to us a monument of the very highest class of art. The Louvre forms a precious historical page in the annals of architecture, tracing, with little interruption, the various modifications of taste during three centuries. The exterior façades and the internal elevations are in themselves harmonious, though discordant from each other, and yet not offering so strong a contrast as to shock one's prepossessions; and, in fact, they nowhere evince deficiency of study, nor an absence of the very highest qualities of artistic merit, whether in the conception or execution.

FIFTH EPOCH, OR THE COMPLETION.

We will now turn to contemplate the great architectural fact of the present day, the completion of the Louvre and Tuileries, by their combination in every part, so as to form a congruous whole. Perrault had originally designed a project for this purpose, but here the deficiency of his ability as an architect made itself apparent. If executed, the addition would have thrown into the shade the Tuileries and the Louvre. He encumbered the intermediate space with twenty courts or vacant "*places*," square, oblong, octagonal, round, and elliptic. He surrounded them with edifices of all sizes, and of as varied forms. He lost all the breadth of which the area admitted, and destroyed the dignity of ample space. The able Desgodetz vindicated his profession, towards the end of the seventeenth century, by a more noble arrangement, simple, and well understood; and, by a judicious disposition of certain masses of buildings, he masked the differences of levels and lines, which existed between the two palaces.

The Emperor Napoleon entertained the idea of uniting the two palaces, but the practicability seemed beyond realization; for there existed an entire quarter of the town between the two, consisting of churches, palaces, streets, public institutions, and private houses, the mere purchase of which, and compensation for the trades and privileges of the inhabitants, seemed likely to absorb a considerable portion of a whole year's income of the empire. However,

numerous projects had been prepared from 1800 to 1812, by some of the most distinguished architects of the day. That of Messrs. Percier and Fontaine was approved by the Government, and in consequence, the north side of the Carrousel was, in 1811, begun to be enclosed for the length of about 700 feet, by a building corresponding with the Gallery of Henri IV. on the south side. The Triumphal Arch of the Carrousel from their design had already been erected. The first stone was laid in 1806, and the cost, which amounted to 40,000*l.* was paid by funds derived from the conquest of Holland. Thus did the conquered provinces of France provide the means for the memorials of their own subjugation.

One great difficulty, in the geometrical disposition for the union of the two palaces, consisted in the want of verticalism and parallelism between the block of the Louvre, the long wing that united the palaces, and the extended front of the Tuileries. To reconcile these differences and produce symmetry of effect, was the great stumbling-block of all parties, who, forgetting how ill able the eye is to detect slight differences in execution, and small divergencies of parallelism in distant masses of building, sought to reconcile these incongruities by intermediate masses, and expedients of circular ends to the court, or by subdivision and diminution of the "Place du Carrousel," sacrificing the noble character produced by vast space, and limiting the "*Colpo d'Occhio.*" It was apparent, also, to some, that the Tuileries was deficient in domestic offices, residences for the household officers and persons attached to the court, and particularly in residential accommodation for the immediate family of the sovereign, the grand suites of saloons and apartments for court ceremonials absorbing almost entirely the rooms required for domestic comfort. Some of the projects provided new wings, and *corps de bâtimens* attached to the Tuileries, next the garden; others on the other side of that palace, next the Carrousel. It had been, ever since 1805, a favourite project to transfer the great national library of the Rue Richelieu to the new constructions; and, throughout, one of the absolute conditions was to maintain the two main thoroughfares for even public vehicles, which have existed ever since the time of Louis XV.

Louis XVIII. continued, in 1820, the wing constructed by Napoleon, for an extent of some 70 or 80 feet. He died in 1823, and the brief reign of Charles X. succeeded, but no further addition was made. Louis Philippe, although promoting architectural works in Paris, thought it wiser to complete the other public edifices, which he found in progress when he mounted the throne, rather than to begin a new project of such enormous cost. These were numerous and expensive operations, and certainly Paris, at his expulsion, had assumed a more complete aspect than it had ever hitherto done. After the Revolution of February, when the Republic was proclaimed, the project of the junction of the palaces was revived, as a judicious mode of tranquillizing the turbulent disposition of the working classes, apt to create "*émeutes*" when not employed.

In 1835, Mons. Brunet-Debaines, now of Havre, prepared a very fine and comprehensive plan for the additional family and household accommodation in connection with the Tuileries, and for the allocation of the National Library, galleries for the exhibition of works of industry, and also for the opera house and *chateau d'eau* in the Place du Palais Royal. He forms a central square in the Carrousel, 900 feet wide by 750 feet long: at each corner of the present Carrousel, next the Tuileries and next the Louvre, he forms masses of buildings with a central court, projecting about 200 feet into the court from the long sides, north and south, extending 400 feet from the Tuileries and the Louvre respectively; thus resolving the great court into a species of Greek cross. In each of the masses of buildings next the Tuileries he forms two courts for stables and coach-houses, domestic offices, accommodation for the persons attached to the court, and family conveniences for the Royal Family, compactly disposed. The courts next the Louvre are respectively appropriated to buildings for the library, and to an extension of the picture galleries.

My friend Mons. Dusillion exhibited a design in 1849, the leading features of which are similar to Mons. Visconti's. He continues the wing begun by Napoleon up to the place opened in front of the Palais Royal: here the line of frontage then breaks back about 25 feet, and its direction is changed so as to be at right angles to the place and to the axis of his new building. By another slight break just beyond the place it forms another recess, and is continued until it comes in a line with the wing of the Louvre built by Percier and Fontaine, where it turns round to meet the Carrousel. At the distance from the Tuileries of about two-thirds the length of the court, Mons. Dusillion throws a building quite across on the line of the axis of the Place du Palais Royal, with two projecting wings producing a noble inner court next the Louvre, 500 feet wide by 400 feet deep, called that of the Bibliothèque Nationale, and smaller courts, 100 feet wide are enclosed within the "*corps de bâtimens.*" His conception is simple and dignified. He preserves the axial *alignements*, and still a noble extent for the Carrousel of 1050 feet by 900 feet. Faithful to one idea, Mons. Dusillion devotes the whole of his new building to the reception of the vast collection of books, medals, and other objects of the great National Library, by a very imposing and convenient distribution of halls, staircases, and galleries; and their junction with the Louvre is direct and easy. Any addition to the domestic accommodation of the palace of the Tuileries forms no part of this design.

THE DESIGN OF MONS. VISCONTI.

To comprehend properly this project, we must understand the programme traced by the hand of his sovereign, and which it had to satisfy. The idea of transferring the National Library to this site was abandoned. The Emperor Louis Napoleon wished that accommodation should be provided for the residence and administration of his two ministers, to whom was confided the execution of all public affairs. His Majesty also desired that provision should be made for the periodical exhibition of the works of modern artists, so as to relieve the pictures of the old masters in the Louvre from being covered up, and those galleries from being appropriated for that purpose, as had hitherto been necessarily the case. There was to be stabling for 140 horses, and coach-houses for fifty carriages for the use of the Emperor and public purposes.

Let us now see how this has been accomplished. Mons. Visconti has continued the line of front next the Rue de Rivoli in one continuous direction, and without any other break than slight projections here and there to relieve the monotony of an uninterrupted façade. On the axis of the Place du Palais Royal he introduces a central entrance to the ministries, and carries out into the Carrousel a block of building 700 feet long by 290 feet deep, projecting into the grande place 230 feet, and containing two large courts averaging 200 feet by 140, and one less court 140 feet by 80. This block he appropriates to the two Ministries of State and their dependencies. From the long gallery next the Seine he throws out a like block into the Carrousel, 600 feet long by 230 feet deep, with two courts larger than those previously described, and a similar smaller court. A very grand staircase will lead to the first floor, which, as well as the entrance floor, is to be appropriated to the annual exhibition of modern works of art: they will also connect with the galleries of the Louvres containing the old masters. In the centre will be a most splendid hall, two stories high, richly decorated, 67 feet wide, 200 feet long: this will be used for the meeting of the "Corps d'Etat" when the Emperor wishes to convoke them. There will be a riding-house of like size beneath in one clear span, and in the basement story the stabling for 140 horses, and under the old gallery next the Seine the coach-houses for the fifty carriages.

The central block in the right wing facing the Palais Royal, and on the same axis as it, will form a noble entrance-hall, vestibule, and thoroughfare for foot-passengers and private carriages going from the Place du Palais Royal to the Place Louis Napoleon, as the space between the two wings is to be called, the centre being occupied by ornamental gardens, like the square gardens in London, with fountains and statues of Louis XIV. and Napoleon I. In the centre, porticoes will face the Place Louis Napoleon, decorated with marble statues of the great men of France, and the whole architecture will correspond in style with that of the Louvre, with a more discriminate use of decoration and a greater relief by contrast. The present plain front of the Louvre facing the Tuileries will be made to correspond with the new building by a little more ornamentation than it at present possesses, for when originally designed by Pierre Lescot, it only faced inferior streets and dwellings, and was therefore executed with great simplicity and absence of decoration. To those so well competent to judge of the ability and reasonableness of this disposition of plan, it is needless for me to offer any comment upon the skill and taste which have conceived it.* But I cannot forbear to observe that it harmonizes and blends together the two incongruous and apparently incompatible masses of the old palaces—it reconciles the obliquity of the wings—it preserves the vista from the façade of the Tuileries up to the Louvre—by the judicious contraction of the Place Louis Napoleon it renders appreciable the vastness of the Carrousel,† still of gigantic extent, about 900 feet square, sufficient to manœuvre squadrons of cavalry, and encamp (in case of need) its thousands of troops. There still, however, remains to be provided domestic, family, and household accommodation for the comfort of the Royal inhabitants, and hereafter will have to be added in contiguity to the Tuileries, and, either in the Carrousel or on the garden side, masses of building, to render this a comfortably habitable, as well as the most vast and sumptuous palatial residence in the world.

These colossal operations of the Louvre are but part of a vast series of improvements now carrying out, as you are aware, in Paris. The present Emperor, with his usual penetration, feels the full importance of giving employment to the industrial classes, of encouraging the fine arts, as among the finest illustrations of his reign, and contributing to the refinement of the people and the improvement of manufacturing productions. He equally appreciates all the influences upon the health of the metropolis, and the advantages to commerce derivable from clearing away the old closely confined quarters, and opening up new lines of thoroughfares. The works at the Louvre are a portion of this extensive scale of operations to be promptly and vigorously carried out. The decree for the works necessary for this object was dated the 12th March, 1852, and a sum of one million and twenty-seven thousand pounds to be expended in five years, judged requisite. The first stone was laid on the 25th July following, and at the end of the same year the north wing had been carried up 6½ feet above the level of the Rue de Rivoli. During the last year the contracts were entered into for the masonry, carpentry, and iron work for nearly all the parts of the new buildings to the extent of 800,000*l.* In March last year, 1,200 workmen were employed, increasing in numbers until November, when 3,000 were on the works, and in December, 2,000.

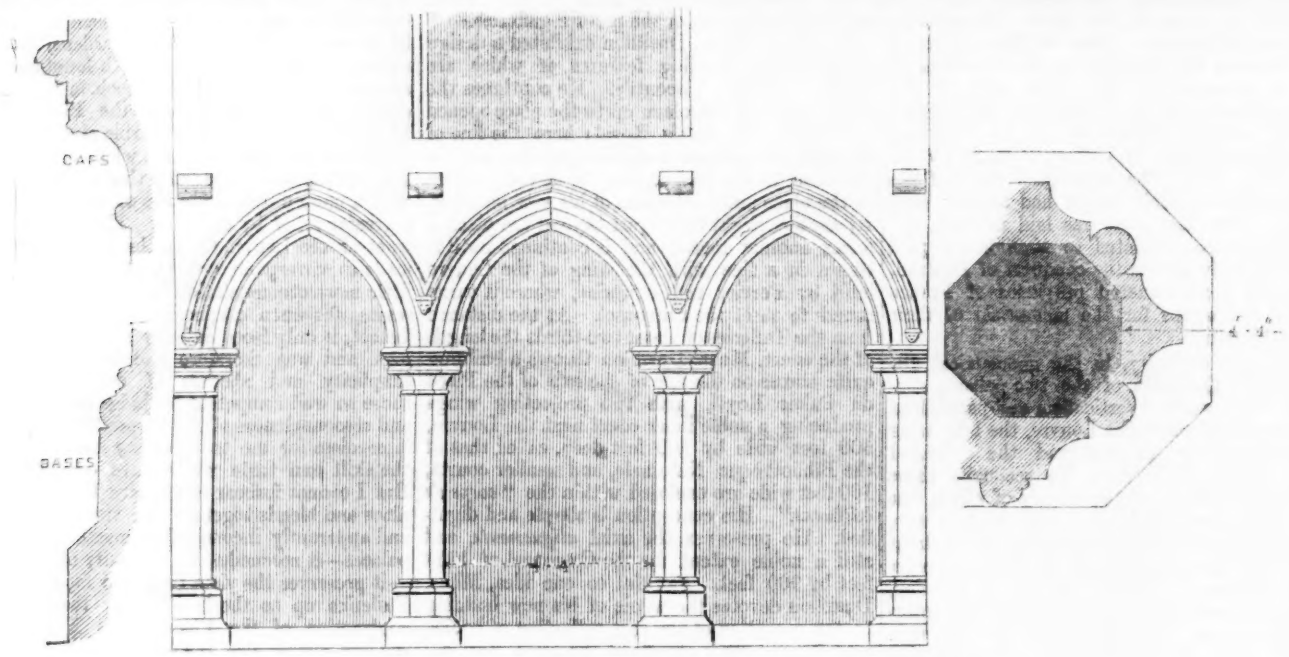
192,000 cubic yards of earth have been removed; and there have been worked up—109,000 cubic yards of stone and concrete: 300,000 kilogrammes of iron are already used.

In 1852 were expended	£47,800
„ 1853 „	227,040
Making together	274,840
Besides other outlays, amounting to...	48,714
Already expended.....	£323,554

The premature death of our lamented friend Mons. Visconti, the highly gifted architect, in December last, was a grievous loss; but so unremitting had been his attention, so ready his conception, that, when I visited Paris in October last, he showed me between 150 and

* The plan will be found in our vol. x. p. 443.

† Size of Lincoln's-Inn-square, 845 feet by 625. Size of Russell-square, 700 feet square.



CHANCEL SCREEN: CHURCH OF CHAPEL-LE-FERNE.

200 drawings of details, which he had prepared; and in which the particulars were so minutely specified, that the work, if carried out agreeably to them, will have that unity and grandeur of conception and refinement of taste in every part, that will stamp this as one of the greatest works of the age. The architect, with noble disinterestedness casting aside all personal considerations, has conformed to the style of the original type, and will leave it as an inspiration of the sixteenth century, matured by the experience, refinement, and masculine good sense of the nineteenth.*

T. L. DONALDSON.

CHANCEL ARCH IN CHURCH OF CAPEL-LE-FERNE.

THE church of Capel le Ferne consists of a nave and chancel only, divided by a stone screen somewhat similar to that of Westwell, given in the *Builder*, p. 31, *ante*. The annexed drawing represents the screen, together with the details. The church stands on high ground, between Dover and Folkestone, but is surrounded with large trees, so that it is difficult to find without a guide.

J. E. C.

PRESENTATION OF THE ROYAL MEDAL FOR ARCHITECTURE.

ON the 6th inst. Earl de Grey presided at the meeting of the Institute of British Architects, and presented to the several successful competitors the prizes awarded to them. These (independently of the Royal gold medal) were as follow:—To Mr. Edward Tarbuck, for an essay, entitled, "An Historical Sketch of the past Development of Architecture as a Fine Art," the silver medal of the Institute; to Mr. Hayward, for an essay "On the Pre-Gothic Age of Architecture in Germany, and the Romanesque Development of the Rhine and Central Europe," a medal of merit, with an honorary addition; to Mr. Elgood, for an essay on "Architecture, its Past, Present, and Future;" and to Mr. T. A. Britton, for an essay on "Timber and Deals, with some Remarks on Seasoning and Dry Rot," each a medal of merit; to Mr. Gompertz, for a set of Designs for a Metropolitan Railway Station, a prize in books. To each of these gentlemen the Earl de Grey, with his usual cordiality, addressed some encouraging remarks. His lordship then proceeded to present the Royal gold medal to Mr. Philip Hardwick, R.A. and said—The next prize is that which the munificence and kindness of our sovereign authorizes me to distribute. Mr. Hardwick, you will, I am sure, from what you know of me, feel that no part of the duty which devolves upon me from my position in this chair, is more grateful to me than that of being the means, as the interpreter of the feelings and wishes of your professional brethren, of offering you the mark of their respect and admiration which I am now authorized to present to you. You know me well enough to feel that what I say is not a mere compliment. It is not for me, in speaking to a man like yourself, and in such a society as the present, to enumerate the various claims you have on our admiration and approbation. It is not for me, however fond I may be of architecture, and anxious to encourage it,—to set up my opinion; but I think I may honestly appeal to everybody when I say that the prize now in my hand is given to a man who has great talent of invention, and the power of accomplishing many different objects in many different ways. I am one of the Goldsmiths' Company, and therefore have enjoyed many festive meetings in their magnificent hall. I also am occasionally obliged to travel by the railroad; and the young gentleman who has just now received a prize for his suggestions on that subject, has an excellent specimen before him of a man who can form a grand railway station. Again, when we remember by whom the most ornamental and important part of one of the great legal institutions of this country, Lincoln's Inn, was constructed and decorated,—when we recollect that for one of the largest systems of docks in this country we are indebted to my friend, and to his energy and capability in satisfying the wishes and wants of a great mercantile body—I do not believe it is necessary for me to say that he affords an exemplification of what man can do, devoted to the purposes which his country calls upon him to fulfil; and when his brethren around him pay a tribute to his merits, I think it is, indeed, well deserved. It is, therefore, a source of the greatest gratification to me that it has fallen to my lot to be the means on the present occasion. If you were not present, I might, perhaps, say more. I have alluded to the professional and public character of Mr. Hardwick; I might say a great deal more with regard to private circumstances. I might allude to the integrity of his character,—the confidence which has been placed in him by all classes,—the references to him in cases of arbitration and similar matters. Omitting these, however, I am satisfied that all who hear me agree with me that the prize which I have now the pleasure of giving, is fully deserved.

Mr. Hardwick replied—It is now my pleasing task to thank your lordship, and you, gentlemen, for having this year selected me to receive this Royal medal, a selection that may be considered a very proud distinction for the member who receives it. I must in the first instance, almost before I thank his lordship for the kind expressions he has used towards me, express on the part of the Institute our gratitude to our sovereign for the interest her Majesty has been pleased to show in the Institute by this mark of her Royal favour. Let me also for one moment advert to her Royal consort, Prince Albert. I believe that through the extreme devotion and attention he has paid to the advancement of art in this country, there is no period that we can look back upon when art was so greatly encouraged as it is at this moment; and I think, without using too flattering expressions, we may date that encouragement from the time when his Royal Highness first came to this country. Let me now for one moment advert to the expressions with reference to myself which have fallen from his lordship. They are to me much too flattering. I cannot take the credit to myself of deserving the very kind manner in which his lordship has brought me to your notice; but this I may say, that having had the honour of enjoying his personal and courteous kindness many years, that however great the gratification I feel for this honour, that gratification is very much increased by the mode in which it has been conferred. Gentlemen, however high the reputation of an architect may be in public estimation, I hold that it is equally important that an architect should feel himself placed highly in the estimation of his professional brethren; and it is that very circumstance which increases the gratification of this honour; for her Majesty, with great kindness, has allowed the members of the Institute of British Architects to determine among themselves the selection of the member who is to receive it; and I cannot imagine, after a long professional career, a prouder position than that in which I am this night placed. Gentlemen, I feel that another point which affords considerable gratification to the architect of Great Britain who receives this medal is, that it is well known to him that it is not confined to architects of this country; but that her Majesty has most wisely considered that excellence in art is peculiar to no soil, and that, therefore, this honour may be participated in by every

* The preceding historical details are founded upon the information contained in the following works, in addition to the writer's personal knowledge of the buildings in question:—"Des plus excellents Bastiments de France," par Jacques Androuet Du Cerceau. 2 vols folio, Paris, 1576-1607; "Mémoires sur la Réunion du Palais Impérial des Tuileries et du Louvre, et Plans de diverses Dispositions pour l'Achèvement de la Place du Carrousel," par Baltard, Architecte, folio. Paris, 1811; "Arc de Triomphe des Tuileries, érigé en 1806, d'après les Dessins et sous la Direction de MM. C. Percier et P. F. L. Fontaine," oblong folio. Paris, no date: (containing numerous projects by various authors for the union of the Louvre and Tuileries); "Projet de Restauration et de Réunion des Tuileries au Louvre," par L. Fortuné Brunet-Debaines, Architecte, small folio, 1833; "Description Historique et Graphique du Louvre et des Tuileries," par M. le Comte De Clarac, Conservateur des Antiques du Louvre. 8vo. Paris, 1853.

part of the civilised world. But, my lord and gentlemen, I cannot but feel that I owe in some degree the position in which I am now placed to the loss which architecture has just sustained by the death of one of her most distinguished professors; and France must deplore in particular that architect who, I am sure, would have had this medal, and would most justly have deserved it. With consummate talent he had surmounted the great difficulty of uniting the Louvre and the Tuileries. After having matured and perfected that scheme with the approbation of the sovereign and the universal consent of the country, he was charged with the completion of that great work in which so many architects of great celebrity had preceded him. But, alas! in the zenith of his high career, M. Visconti was arrested by the hand of death; and it should be a warning to us all, whenever a large work is entrusted to us, not to be too confident that life may be spared to us to witness its completion. My lord and gentlemen, allow me again to assure you that I return you my most sincere and respectful thanks for the distinction you have thrown upon me in having selected me to receive this Royal medal.

FALL OF CORNICE IN THE NEW ROAD.

Considerable alarm and much damage were caused last week by the fall of the cornice and parapet of a large repository, similar to the Pantechnicon, which is being built by Mr. Rudkin in the New-road, not far from where Tottenham-court-road crosses it. Several of the workmen were severely hurt, and some of the inhabitants of adjoining houses had a narrow escape. The cause of the accident is obvious. The finished cornice (of cement) projected 20 inches. The stone core projected 14 inches, with a mass of brickwork upon it standing out still further, and to balance this there was simply a low parapet of 9 inches work. The drawings show the binders of the roof resting on the core to keep it down, but it seems that following the figuring on the section, the binders were put in below the core. If it had not been so, however, as there are only four or five of these binders in the length (70 feet), an accident might still have happened. So many disasters have resulted from the same arrangement, that if death had been caused, the consequences, either to architect (Mr. Horace Jones) or builder, might have been serious.

PROPOSED ADDITIONS TO BRITISH MUSEUM.

. . . "The present buildings may usefully serve as a warning, rather than a model, to the architect of any additional structures and his employers."—*Vide page 36 of the Report of the Royal Commissioners on the British Museum*, 1850.

I am informed that the Lords of the Treasury have consented to the project of a glass building to cover the quadrangle of the British Museum for a reading-room, and as an addition to the printed book department, capable of accommodating 500,000 volumes more; and that the same architect employed for the old buildings is employed for this additional structure. And if my information is correct, the House of Commons will, in the course of the next or following week, be asked to vote a first instalment for this project, which, in its most important bearings, is utterly unknown to the public, to her Majesty's Government, and to the trustees themselves.

Having devoted much more attention to this scheme from its very origin than any person who has ventured yet in public to express a free opinion on it, since the plans were already published so long ago as the 30th June, 1852,—and having had not only ample opportunities but particular occasion afforded to me by the peculiar nature of several services for which I was employed as assistant in the printed book department in the last seven years, to observe, study, and make due note of the requirements in the whole establishments, and of the capabilities in the building,—I consider it a duty now to acquaint the public with the results of such observations as I made in the daily performances of their service.

By dint only of perseverance in the assertion that all the departments, particularly the reading rooms with the printed book department, required a considerable increase of space which the building did not afford, all internal evidence on the matter has been entirely neglected. The principal librarian, in his letter to Sir Chas. E. Trevelyan, dated 25th July, 1851, reports that the trustees

"Have availed themselves of every resource which the existing buildings were capable of affording."

Any person endowed only with the courage to inquire into the origin of this report would see first of all that it rests at least upon mere assertions, without even an attempt at any proofs. And further, by using only his own eyes and judgment, with the aid of a little practical knowledge, he could not fail to arrive at the very opposite conclusion—*that the waste of every resource which the existing buildings were capable of affording, is so manifest*, so proverbial in the whole establishment, as to leave no other question open except whether the evil is past remedy.

This question has led me to the gradual discovery of one of the very rare instances in which the improvement and enlargement of an establishment is absolutely dependant on greater economy in the means allowed for it. And this refers particularly to the printed books department, inclusive of the reading-rooms. All the arrangements in that extensive portion of the library are so singularly and unnecessarily confused, and rendered so remarkably inconvenient through the most wilful extravagance, in space, in services, in expenditure of every kind, as to render the projected increase now of such a mass of confusion, a dangerous experiment for the existence of the whole establishment. At the same time, however, it is easier there than anywhere else to show, by foot and by inch, that nothing but a systematical *re*arrangement is required to afford double the accommodation now existing for the number of visitors to the reading-rooms and for the number of volumes on shelf; with a considerable diminution of the present expenditure for service, to which the present staff, though now consisting of eighty-five persons, is already inadequate, as it is constantly growing at the same time as the arrears in that department are ever growing in number and in importance.

Thus, whereas the projected construction in the quadrangle is completely preventing such a *re*arrangement, however necessary, and considerably increasing all the present evils past remedy, there are at present still vast and extraordinary resources in the building *to remedy those evils*; and the *re*arrangement of which I speak implies above all an immediate extension of the present reading-rooms to nearly double their size; or speaking by figures, the entire plan of this rearrangement implies an increase of room, by utilizing the waste of 2,400 square feet in addition only to the reading-rooms; 14,631 feet to the printed books department; 1,938 feet to the manuscript department; 1,560 feet to the print-room; 6,088 feet to the antiquities department; 17,900 feet to the natural history, zoology, and mineralogy; 616 feet to the botanical department; and 785 feet to the secretary's department; making a total of 45,919 square feet recovered from absolute waste, by collecting and rendering compact each of the great departments which are now broken and dispersed all over the immense pile of buildings.

The main principle of this internal *re*arrangement and organization of such distracted elements of building, is:—

1. To prevent the great loss to the public and expenditure of again disturbing the collections, which in their main body are now at last, after a great number of years, definitively placed and arranged with care, and by an instructive system, and to remove only their outlying and scattered, or at least much more moveable portions, from inconvenient to convenient localities.

2. To render each of the seven departments as above enumerated totally independent of each other, with direct access from the entrance-hall, and to the secretary's department with the governing board.

3. To remedy the extreme deficiencies of light, and of free circulation in each department, particularly in that of printed books, and remove the principal eyesores for architects and persons of good taste.

All these important objects can be accomplished at once, without even the erection of so much as a single front wall, and at an expense very much below the amount of the yearly vote hitherto passed by the House for the building purposes of the British Museum.

But this plan of rearrangement is further calculated also to secure a future increase of about 82,000 square feet, principally convenient for printed books or for antiquities, at an expense of 720 feet of front walls alone, of one story, with basement, and without purchasing for it new lands, or covering the quadrangle.

And, finally, in the event of purchases of the contiguous property being found expedient, perhaps at some future period this plan of rearrangement is particularly calculated to provide a gradual development for each of the seven departments, singly, as enumerated, and always independent of each other.

Before knowing the sense of the public or Government upon such results in their general outline, it would be premature to enter upon particulars. Yet these, it must be understood, are fully prepared and drawn out from materials collected in the service of the Museum, and in the consultation on single points with practical architects, and particularly with foreign visitors.

The plan is undoubtedly susceptible still of great improvement by any architect who might be impelled to take it up, with a comprehensive mind on the present and the future exigencies and resources for real utility and for grand effects. Although proceeding from motives of enthusiasm natural to the discoverer of a curious and important fact, the proposed *re*arrangement is indispensable. It *must be recommended* to the public at some future day in a much worse state of complication if that extravagant practice of "*additional structures*" be not discontinued now at once, and without any reference to projects at Kensington or anywhere else.* The trustees having "entered a disclaimer, both of credit for the perfections and of responsibility for any alleged defects of the present buildings," their necessary rearrangement before anything else, is not a mere question of opinion, but one of facts and figures which cannot be disputed.

J. F. von Bach.

PURIFICATION OF THE METROPOLITAN GAS.

On one occasion, we remember, while listening to a friendly discussion, in which a professor in the Edinburgh University took part, his antagonist treated rather unceremoniously some "fact" which the professor had adduced, by ejaculating vehemently,—"I deny the fact—I deny the fact:" the gentleman whose veracity, or whose "fact" at least, was thus set at naught, very quietly silenced his somewhat more boisterous than polite adversary by coolly retorting,—"Ah! my good fellow, if you deny facts, I have done—there's an end to all argument with *you*." We have been reminded of this little *contretemps* by the no less unceremonious denial of Dr. Letheby's fact as to the existence of oil of vitriol in the products of combustion from the London gas, not only in the quantity alleged to have been actually obtained, but in any quantity, however small. This denial, however, is made by a gentleman (Mr. Lewis Thompson, M.R.C.S.) whose authority in chemical questions we have reason to respect; and as it is not only positive, but something more,—involving not only Dr. Letheby's accuracy as a chemist, but his character as a gentleman incapable of either the "misrepresentation" or the "falsehood" with which he is actually charged,—we are curious to know how the Dr. will receive and treat such a mode of dealing with his facts. Meantime, the style in which he is treated in respect to this important matter would naturally induce one rather to question than to assent to the counter assertion of Mr. Thompson, at least till his antagonist had an opportunity of defending his own accuracy, both

* Whether it be determined or not hereafter to give up the entire building, or any part of it, to the library alone, its rearrangement as indicated still remains the first and essential condition for the proper and immediate enlargement of reading-rooms and library, and is absolutely prevented by the present project of additional structures.

professionally and morally speaking,—if indeed he would deign to notice at all an antagonism so strongly put.

It so happens, however, that since the two contradictory statements were made, both of which we have in fairness laid before our readers, not only Dr. Letheby, but Mr. Thompson himself, has modified his own original statement; so that between the two shifting positions a not inconsiderable approximation has been mutually made towards an intermediate and common though as yet somewhat indefinite agreement and understanding. Thus Dr. Letheby, in a report to the City Sewers Commission, subsequent to that already given in our pages, explains, or, at least, repeats in a very much modified form, that "a large portion" of the "21 grains" of "sulphuric acid" actually got from the products of the City gas combustion "would, doubtless, be neutralized by the ammonia of the gas;" whereas he had previously stated, according to the reporters for the daily press, that the products, if not, in fact, the gas itself, contained so much "noxious matter" that "he had obtained 21 grains of oil of vitriol from 100 cubic feet of gas, which was getting into the atmosphere." In regard to this amended statement we must add that we transcribe from a quotation made in a second communication by Mr. Thompson, which appears, as his first also did, in the *Journal of Gas-lighting:* we hope, therefore, that we are not doing Dr. Letheby an injustice in supposing that he *has* so explained or modified his somewhat startling original statement. On the other hand, Mr. Thompson himself, in this second communication, no longer alleges that there is "*no* oil of vitriol whatever in the products of combustion got from any coal-gas," but limits his previous and scarcely less startling statement to a declaration that "nothing like twenty-one grains of oil of vitriol ever were obtained, or ever can be obtained, by any living being, from 100 cubic feet of any coal-gas, as consumed by the British public throughout her Majesty's vast dominions. I admit no exception," he somewhat supererogatorily adds; —and a very safe challenge this is *now*, quoad Letheby, if *he* meant, as is now implied, that "a large portion" of the 21 grains of "sulphuric acid" did not exist in the shape of free "oil of vitriol" in the "100 cubic feet of gas" at all. If, however, it was intended, notwithstanding, to startle the public into the idea that it *was* free oil of vitriol of which he spoke, there was certainly a spice of chemical quackery in this that was by no means justifiable. But, as the question now stands, what are our doughty champions fighting about? If a "large portion" of the corrosive under consideration be neutralized, the implication is, that there is only a small portion of it in the corrosive state. Does Mr. Thompson still deny that there is even a small portion of it in that state, or does he not *now* deny this? As to his *reason* why there is not, or cannot be *any* oil of vitriol in the products from the combustion of coal-gas, namely, not so much *because* of any counter *facts* disproving it, but "*for* [or because] the ammonia it constantly contains is more than sufficient to neutralise and render harmless both the sulphurous and sulphuric acid caused by its combustion,"—we freely admit the probability that there is quite enough and more than enough of ammonia in coal gas for such a purpose, but ammonia itself is decomposible, and consists of hydrogen and nitrogen; and it does not seem to occur to Mr. Thompson that it is perfectly possible that in a somewhat complicated chemical conflict, such as that which must occur in the combustion of impure coal-gas, not only may the sulphur of the sulphuret of ammonia or other ingredient be oxygenated by the air into acid, but the hydrogen of the ammonia itself may also at the very same time be oxygenated into *water*, freeing the nitrogen, while this very water is precisely what the sulphuric acid requires or demands in order to constitute oil of vitriol; and every chemist knows that nature often *compromises affinities*, and is induced to *modify* them by *à priori requirements* or *demands* of this very kind. The question, however, is one of *fact* much more than of *reasoning;* and we are very much mistaken indeed if the facts of the case, independent altogether of those adduced by Dr. Letheby, are not precisely in the teeth of Mr. Thompson's facts as well as of his reasoning. Thus the remarkable rotting and destruction of book-bindings in one of the London clubs, *investigated by Professor Faraday*, and a like mischief to the library of the Literary and Philosophical Society of Newcastle-upon-Tyne, appear to have led to the discovery that gas *is* frequently impregnated with corrosive substances, oil of vitriol being proved at Newcastle, if not also in London, to be at least one of these substances; and be it noted here that it is a matter of small importance to the public whether such corrosive agencies be sulphuric acid, oil of vitriol, sulphuret of carbon, or indeed anything else of a corrosive nature; so that to disprove the possibility of its being oil of vitriol matters very little to the point of real importance in the question at issue,—a point, however, with which Mr. Thompson fully identifies his own antagonism to Dr. Letheby; but, more than this, we are greatly misinformed if *oil of vitriol* has not been already *proved* to be the very corrosive agent which does, or at least once did, all this mischief,—a mischief which is notorious.

A correspondent of our own quite recently drew attention to this subject in a communication wherein he describes the effects produced in the library referred to at Newcastle, and the means taken to obviate them. By reference to our impression for 24th January of this present year, page 17, it will be found that in describing the peculiar apparatus there put up, with a tube for the ventilation of the products of gas combustion in the library, after it had been *ascertained* that the rotting and destruction of the book-bindings were attributable to these corrosive products alone, he says,—"At first a tap was put at the bottom of this tube, but it could not be kept tight *from the corrosive nature of the water:* the arrangement now adopted is to suspend a *glass* vessel, by means of a brass collar and a bayonet-catch below the open end of the tube; and the water collected is removed every morning. Notwithstanding the rapid updraught, and that, consequently, a considerable portion of the water flies off by the chimney, the quantity collected every morning from four chandeliers is at present upwards of half a gallon. *This water, when analyzed, has been found to contain a large quantity of sulphuric acid, and sulphate of ammonia, as well as sulphate of iron and sulphate of copper*, which last, of course, it gets from the pipes." Now the "sulphuric acid" in this "water" must have been "oil of vitriol," as all sulphuric acid is so long as it is in contact with water, its affinity for which is so great, that it has been used as a drier of moist air from its very power of absorbing water even after it has been already converted by it into oil of vitriol.

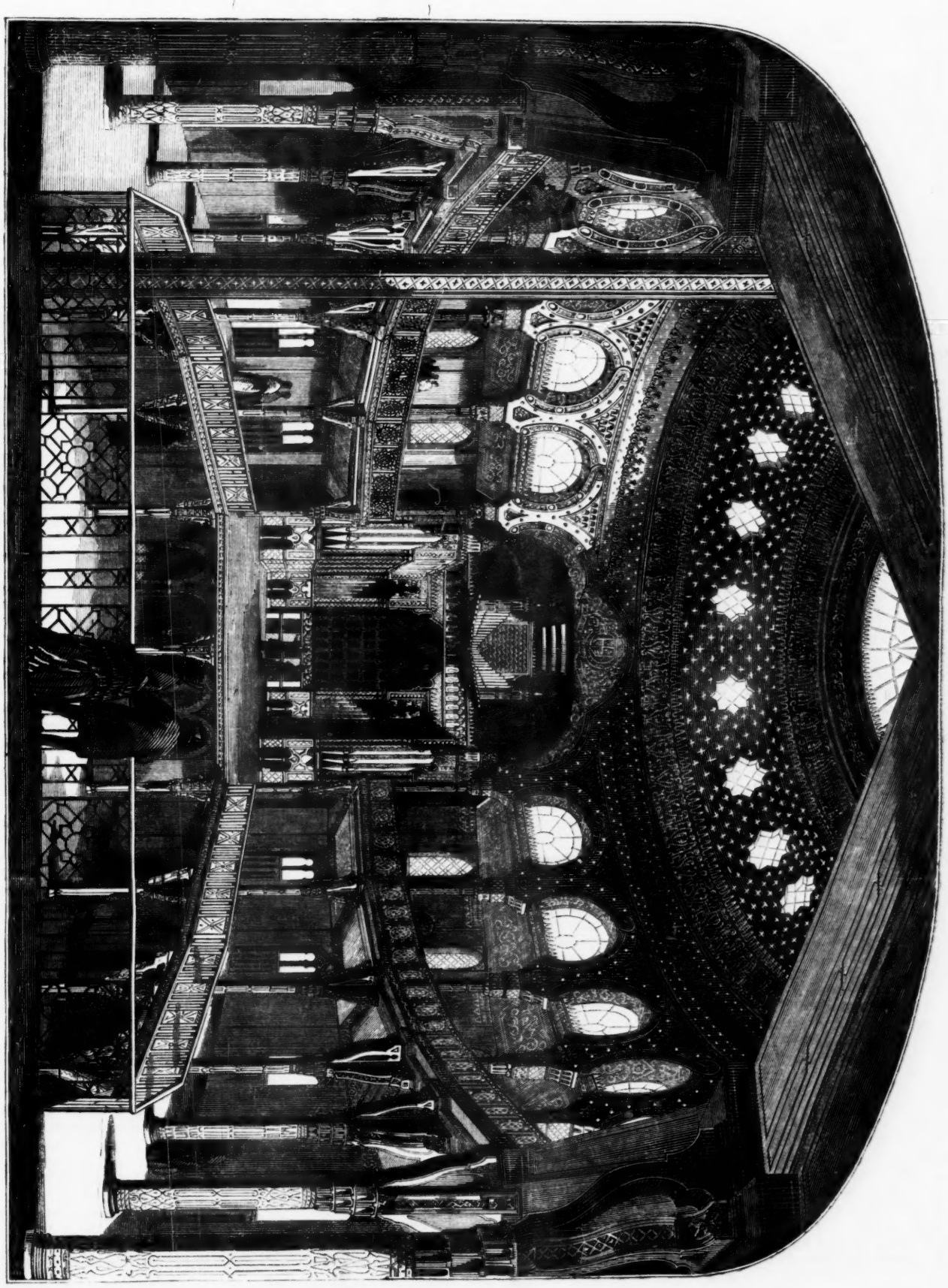
Will Mr. Thompson venture to "deny" any of these "facts?" And if not, what become of his own bold assertions? There are more reputations at stake, we fear, than Dr. Letheby's.

But although the question, as we have seen, is not limited by Dr. Thompson to metropolitan gas, being put so as to extend to the combustion of coal-gas anywhere or everywhere, what we are more particularly interested in at this moment is the question of the purity or impurity of the London gas. This is a question for decision by chemists, but it does not seem to be likely to be settled in the way the present antagonists have gone to work. If, as Mr. Thompson states in his second communication on "The Oil of Vitriol Bugbear,"—"Davy, Faraday, Wollaston, Henry, Ure, Graham, Brande, Cooper, and, in short, every chemist of celebrity in Great Britain has been fee'd and consulted on the purification of coal-gas by the different companies," and if the eyes of the metropolitan companies are now opening, as we are happy to say they seem to be, to the importance, to their interests, of the vast field of profit still lying fallow in private dwellings, and hence to the absolute necessity of not only rendering their gas perfectly pure, but of convincing the private families of the metropolis that now it *is* perfectly pure,—why do they not at once procure such overwhelming chemical evidence to that effect as will carry everything before it, and so open the way by degrees into every dwelling throughout the metropolis, however humble or however high? It has ever been our opinion that to this great end they must and will come; and it was mainly to prepare the way for this that we became, as the public organ of the companies themselves declared we were,—"The *monopolist* of *incendiary* [that is, of light-spreading] gas intelligence"—the soul and spirit of the movement, which we alone originated and successfully carried out, in favour of "cheap and good gas." We have steadily looked forward to the time when the London gas would and *must* be made pure enough for use in private dwellings. Are we to understand that that period has now arrived? If so, let it at once be proved that it is so, and the companies may depend on our strenuous efforts to promote their interests by assisting in the extension of their gas throughout the private dwellings of our fellow citizens. Of this we have often assured them. Thus, on 15th December, 1849, in an article titled "Success to the Gas Movement," we remarked—"The manufacturers, old and new, will soon find that *increased consumption* IN PRIVATE DWELLINGS will constitute their grand field of profitable operations, *and with all our heart we will second their efforts in this direction*, for that is the real goal of all our past exertions in this good cause. But to this anticipated and almost illimitable diffusion in private dwellings—from hall to kitchen, from kitchen to parlour, from parlour to drawing-room and bed-chamber—purity, extreme purity, is absolutely essential: there can and will be no such diffusion without it, *and hence the bringing of the price within reach of all classes in domestic life will inevitably be accompanied by an increase, not by a deterioration of purity.*" At that time and subsequently, threats had been held out, in order to prevent the reduction in price for which we had been fighting, that the companies would adulterate the cheap gas 37 per cent.! Have they done so? We freely give them the credit of believing they have not. On this point we insisted, again and again, that the very contrary must unavoidably be the result, and therefore urged consumers, and would-be consumers, to "persist in their demand for *cheap* gas, without any fear of this threatened bugbear." Most sincerely do we trust, then, that Mr. Thompson's communications, in which he speaks so pointedly of "the enormous advantages of gaslight in private houses," as well as other communications, urged upon us in the interests of the companies, are an earnest and an assurance that we were right, and that the time has now arrived when our anticipation is about to be fulfilled. But again we must press the suggestion, that the *bad odour* in which metropolitan gas has long been held by the heads of resident families can only be dissipated—even though "the oil of vitriol bugbear" really now be nothing but a bugbear—by an overpowering weight of first-rate chemical evidence, once for all procured and widely published, to the effect, that *the metropolitan gas is now so pure as to be perfectly eligible for use in private dwellings.*

ROAD FROM BROMPTON TO THE PARK.

THE miscalled "Kensington Improvement Act Amendment Bill," to facilitate access from one large district to another, was thrown out on the second reading, not because any one doubted the importance of getting the desired road, but because of the form in which the Bill had been introduced. The result is much to be regretted. It is hoped that something will yet be done to obtain the desired improvement: both the Kensington Improvement Commissioners and the Royal Commissioners of 1851 ought to stir in it. If a building be placed in the way of obtaining the improvement it will be a sin against the metropolis. If those who have the right to prevent the formation of a road are determined against allowing carriages to pass, they might surely be led to admit a gate for foot passengers. Private feeling ought to yield to the general good.

"BUILDINGS BILL."—The *Observer* says, "Government have instructed the General Board of Health to prepare suggestions for a Buildings Bill, to serve for the country as well as for the metropolis."



THE ROYAL PANOPTICON, LONDON.—MR. T. HAYTER LEWIS, ARCHITECT.

[See p. 137, *ante*.

THE NATIONAL INSTITUTION OF FINE ARTS.

THE collection at the Portland Gallery, opposite the Polytechnic Institution, Regent-street, is now open to the public, and consists of 438 pictures, mostly landscapes. Mr. R. S. Lauder, and Mr. J. E. Lauder, take the highest place, the former for his "Portrait of a Lady" (71), a relation of one well known in the arts, and "The Lady of Shalott" (232), and the second for his "Tambourine Player" (263). Miss Howitt exhibits a very clever first picture from Faust, bought by Mr. W. Herbert; Mr. Duffield a very first-rate still-life piece (56); Mr. Middleton a good portrait, "Mr. Xemines" (217), and Messrs. Williams, Sidney Percy, Gilbert, and Boddington, a large number of their usual pictures, scarcely equal, however, to previous works by the same hands. Mr. Wingfield's "Poins" (46), Mr. Willis's "Pleasant Nook in North Wales" (270); Mr. Egley's "Charles V. at the Monastery of Yuste;" Mr. Wyburd's "Day Dreams" (386); "Ghent," by Mr. A. Montague; and the "Flight of Mary Stuart from Lochleven" (408), by Mr. Glass, are amongst those which will obtain attention; and Mr. Barraud, Mr. Elen, Mr. Wells, Mr. Herring, and Mr. Dukes, should not be passed by. Some small landscapes by a young artist, Mr. E. Hargitt, are promising.

PROVINCIAL NEWS.

Boston.—The project of erecting a building for a corn exchange, athenæum, &c. has been revived in a way likely, it is said, to be successful.

Peterborough.—The statement respecting the removal of the organ-screen erected by Dean Monk in Peterborough Cathedral has been contradicted.

Towyn.—The proceedings of the local board of health here, since its introduction, have been anything but satisfactory to the ratepayers generally, says the *Shrewsbury Chronicle*, "for whilst on the one hand there has been a great expenditure of money (for salaries), not the slightest improvement has taken place in the state of the streets. Meetings are convened from time to time, but for what purpose? It appears to do nothing."

Birmingham.—The inscription-stone of the building in course of erection in Bishop-street, to accommodate the Sunday-schools in connection with the Moseley-street Wesleyan Reform Chapel, was laid on Tuesday in last week by Mrs. John Wright, of Sparkbrook. The new school-room will be 75 feet long by 18 wide, and the erection will cost 450*l.* The number of scholars is 256, who are instructed by thirty-three teachers.

Loughborough.—The town-hall movement appears to have received an impetus during the last week or two. About 5,000*l.* have now been raised by donations and shares. An offer, it is said, has been made for a site, adjoining the Loughborough Bank, which will enable the projectors to make a street through from the Market-place, opposite Mill-street, to Woodgate, for the convenience of the public.

Higham-on-the-Hill.—A correspondence has taken place between one of the tenderers for the erection of the parish church here and the rev. gentleman at the head of the church building committee in respect to the decision announced by us on 4th inst. The result of this correspondence is by no means satisfactory. The rev. committeeman appears to admit that he had explicitly promised that the builders tendering should have fair play, and even that no special understanding was come to that the lowest tender might *not* be accepted. He at the same time disclaimed what would have been his only excuse under such circumstances for not selecting the lowest tender, namely, that the tenderers were not of sufficient *status* as to character and responsibility. What he must have meant by fair play, therefore, it is hard to conceive: we question whether he himself knows. The only fair play in such a case that could be honourably observed was to select the lowest tender. By, on the contrary, rejecting it and accepting one 80*l.* higher on a sum of about 800*l.* the committee cast a deliberate slur on the business reputation of every one of the lower tenderers, while probably the only motive was mere favouritism towards the one selected. There is a recklessness of conduct in such procedure which every honourable mind will reprobate.

Newark.—Barracks for the Notts militia are about to be erected in this town. On the northern side there will be a long range of buildings looking south, having in the centre the stores and armoury, with residences for the quarter-master and serjeant-major on either side, each communicating with the centre building. In the rest of the range will be provided comfortable dwellings for about twelve serjeants. At the south-east corner of the ground the magazine will be placed, and a building consisting of guard-house, cells, orderly-rooms, &c. will occupy the north-west corner. Ample space will be left for all military exercises, and the whole will be enclosed by a strong brick wall.——The Newark improvement commissioners have ordered that the drain recently laid down from Bridge-street, across the north side of the Market-place, and along Church-street and Kirkgate, should be forthwith taken up and relaid. "The contractors (Messrs. Tomlinson and Harper, of Derby)," says a local paper, "are bound to do it entirely at their own expense, as the agreement into which they entered with the commissioners contains a stipulation that they (the contractors) shall be responsible for the proper working of the drains for twelve months. Nor are the streets above referred to the only places where work must be amended, for it has already been found that a similar mistake has occurred in Spring-gardens. The streets, too, have been newly paved on an improved principle, and just when the inhabitants have begun to reap the advantage of this improvement, it is absolutely necessary to tear it up again. Many parties threw the blame on Mr. Bailey, the town surveyor, but we are informed that the commissioners consider that it was no part of his duty to test the levels as the drains were being made; his duty being merely to take the levels in the first instance, and to prepare the plans, which he did correctly. If the first twelve months had passed over before the error had been detected, the contractors would have been released from their agreement, and the whole burden would have fallen upon the town."

Sunderland.—The Monkwearmouth baths and washhouses, the foundation of which was laid on 20th June, 1853, were opened by the corporation of Sunderland on Thursday in week before last. The building is situated on the site of the old fish-market, opposite Hallgarth-square, and has been erected from a design by Mr. Crozier, engineer to the corporation, by Messrs. Brown, Brothers; under the inspection of Mr. Thomas Ewart, builder. The machinery has been fitted up by Mr. Watson, of Newcastle. The interior is fitted up with every convenience. In the gentlemen's bath-room there are five warm baths, one of which is of the first class. There are also cold and hot shower-baths. In the ladies' room there are five baths, exclusive of a shower-bath and vapour-bath. The washing-room is 56 feet in length by 27 feet in breadth. There are thirty-two stands, each of which contains a cast-iron boiler for the clothes, which are boiled by steam. The floor of this room is formed of cement, and a wooden frame is placed for the washers to stand upon. Manlott and Alliott's patent wringing-machine is placed in the room. In the drying-room there are thirty-two drying-horses. This room is heated by a serpentine-formed steam-pipe; and there are four valves in the roof for letting out the damp vapour from clothes while drying. The ironing-room is 37 feet in length by 20 feet in width. All the rooms are ventilated through the roof. In the upper part of the engine-room there is a water meter capable of measuring 2,000 gallons per hour. There are also two large cisterns capable of containing 2,500 gallons. The total cost of the buildings is about 2,400*l.*

Edinburgh.—The last annual report of the managers of the Royal Edinburgh Asylum for the Insane states, that from the overcrowded state of the pauper department, a great necessity exists for immediately proceeding with large additions to the asylum buildings. From the great rise of late in the prices of building and building materials, the managers are unable to accomplish all that was contemplated in obtaining borrowing powers under the late Act, but they have resolved to proceed with such works as their borrowing powers enable them to execute. These works consist of a new kitchen, &c. having three stories above, to contain accommodation for six higher class patients; an octagon building, and the completion of the southern portion of the unfinished wing of the western department, calculated to accommodate 174 pauper patients; a separate building for noisy patients; new washing-house, laundry, &c. A large portion of the original design of the building appropriated to pauper patients will still remain unexecuted; and an urgent appeal is to be made to the public for assistance.

Kinnaird.—The ancient, roofless, and ruinous Castle of Kinnaird, built nobody knows when, but in the time of slingers and bowmen, is at present undergoing a process of restoration in as far as the roof and battlements are concerned. The estate of Kinnaird, forfeited, with the rest of the Fingask estates, after Culloden, was recently repurchased by the family of Fingask; and the lovers of antiquity are indebted to that family for thus taking measures to prevent the further decay of Kinnaird Castle-keep. Mr. Charles Spence, the bard of the locality, is also both architect and mason for the proposed restoration.

Glenelg.—An Inverness paper states, that the ancient Glenelg towers, known generally in the district by the name of "the Danish Towers," but supposed by Pennant and others to be of Pictish origin, and admired as among the most entire specimens in Great Britain of the primitive architecture to which they belong, have been seriously injured by the removal of stones for building purposes. The proprietor, Mr. Baillie, of Glenelg, has brought the case before Sheriff Colquhoun, for replacement of the stones.

POISONED WELLS.

IT certainly does not require a conjurer to explain the mystery of "R. C. C.'s" well, and adjoining cesspools and drains, mentioned in page 134. The "place" may not have been "discovered" where putrid matter "oozes" into the water; but the facts that the bricks below the compo are "black," and "smell disagreeably," that "the water is tainted," and that "diarrhœa and typhus have prevailed," the fever in one instance "having proved fatal," should be taken as proving that drains, cesspools, and well do communicate, and the use of water from this well should at once, and for ever, be discontinued. No repairs will make the water sweet. The present mystery may be explained thus:—Well, cesspools, and drains are sunk in the same subsoil (alluvium): for a certain length of time the refuse is filtered, but gradually the pores choke, and the cesspools fill until there is a vertical head, producing pressure sufficient to force the foul material, unfiltered, into the well: hence the recent palpable fouling of the water, and the consequent excess of disease. The first mistake was making well and cesspool in the same subsoil: contamination was certain, and in a degree has taken place since they were first used. Mere filtration does not purify cesspool refuse, though it may cause the water to look "bright and sparkling." Dr. Angus Smith has analysed the water from scores of wells within and near towns, cesspools, and graveyards, and never found one specimen of water untainted. Many waters, regularly used, were found, on evaporation, to leave a residuum, the smell of which was "awful;" and some waters, said to be "very good," were "positively poisonous with matter from graves, cesspools, and drains." I have personally inspected hundreds of instances where wells and cesspools are sunk in alluvial deposits of sand, gravel, &c. and have heard the owners of such wells and cesspools maintain, in the most positive manner, that no better water could be found than their particular pump produced; although they would acknowledge that the cesspool had received the contents of one or more waterclosets, as also all the house slop-water refuse, and had never required emptying for twenty years. This had been set forth as matter for special congratula-

tion, and as proof positive that sewers and drains of transmission were not required, and that a public water-supply, from a pure source, was not needed.

I would recommend "R. C. C." to drain his house, fill up his cesspools, abandon the present well, and obtain water, at any cost, from a source more pure. Better bore through the London clay, although 200 feet deep, than use "the water of a land spring," contaminated by drain and cesspool matter. Earthenware pipes, 6 inches in diameter, properly laid, will effectively drain the house; and an artesian boring, of 4 inches in diameter, may bring up water enough from beneath the London clay. At all events, if health and life have any value, the present order of things must, at once and for ever, be abandoned. To patch old drains, cesspools, and well, will be to waste money, and to tamper with health and life. R.

Another correspondent writes:—I have no doubt but that the cause arises from a greater abundance of water, which has become stagnant. I have had to deal with several wells like his, and have cured them in the following manner: should the well be of the common size, bring up within the old brickwork a new lining, to the height of the water level, leaving a space of 3 inches between each wall: get some of the coarsest sand he can find, and wash it: fill the said space up with the same.

N.B. The bricks must be laid in moss, to prevent the sand washing through the joints: a very thin layer will do. After that is done, shorten the pump 2 feet and fill the well up those 2 feet with fine washed gravel. I have no doubt but that it will prove a sure cure. G. T. C.

And a third writes,—I cured a well similarly situated to that of your correspondent "R.C.C." by driving a vat or tub, the staves of which were made of (21 feet by 7 by 2½) floor battens, driven their whole lengths, and into the bottom of the well as far as they could be by hand hammers and drifts: the battens should be shot in the edges to the radii of the internal curvature of the well, and then ploughed and tongued as for sheet piling: they should be driven as close to the brickwork as possible, and kept so by wedge-shaped battens if required: as soon as the vat is completed, the back between the vat and brickwork should be grouted with Portland cement, quite full to the top of the vat. The top of the vat must be above the bricks laid *without* mortar in this case at least one foot. W. THOROLD.

CLEAR THE WAY FOR KING CHOLERA!

WE know too well the powerful influence of fear over the human frame,—and especially its influence in the positive production of the dread plague we call cholera, wherever circumstances may tend to induce a predisposition to its ravages,—to be much inclined, at any time, to assist in the excitement of alarm for its impending advent; but it is our bounden duty ever and anon to stir up the slumbering public into something like a consciousness, at least, if not a fear, of this king of terrors. Were the fear a timely and a moderate one it would be entirely beneficial: it is the sudden alarm of immediate, unexpected, and unprepared for danger which is most injurious; and to obviate the latter it is absolutely requisite, at this perilous juncture, to excite the former. But our present purpose is simply that of a reporter, to record, within available compass, the salutary warnings and advices of those—such as Lord Shaftesbury,—who have given this subject anxious consideration.

In the House of Lords on 9th inst. a lengthened discussion took place on a motion by the Earl of Harrowby, "for a copy of the report of the General Board of Health on the administration of the Public Health Act and the Nuisances Removal Act from the year 1848 to the year 1854, and also a copy of a memorandum addressed to the Secretary of State for the Home Department on behalf of a deputation of sanitary reformers on the 7th of February last." His lordship said he wished to call the attention of the house to the sanitary condition of the country, and more especially of the metropolis. He believed it was extremely desirable that the consideration of Parliament should be directed, at the earliest possible moment, to that subject, for it was too much the habit with mankind in general to defer precautionary measures until the emergency which those measures might have averted had actually arrived. The cholera had already reappeared among us, and had reappeared with increased intensity. It was not only more fatal than it had ever been before, but it gave fewer warnings of its arrival in individual cases, and the premonitory symptoms were more rapidly followed by the most dangerous stage of the disease. It was, therefore, most important that they should look around them and see whether they were taking the best means in their power for meeting so great an evil. In point of legislation they were in no better position than that in which they had been placed in 1849, when the epidemic last raged in this country, and when their legislation had been found so inadequate to meet the exigency of the period. He believed that if a central board were entrusted with the power of making those drains which in some districts were absolutely necessary even before a supply of water could be given to such districts, a very considerable improvement would be effected in no small portion of the metropolis. The Bill for the Removal of Nuisances might be rendered much more efficient. In his opinion the ordinary law of the country with respect to sanitary arrangements ought to be suspended whenever we were visited by cholera, and extraordinary powers ought then to be committed to some central authority, which might insist on the adoption of every necessary precaution for the preservation of the public health. That was, he thought, the first step they ought to take in that matter. They might afterwards consider what were the best means they could adopt for the permanent removal of the refuse of great towns.

The Earl of Shaftesbury said he rejoiced to find that his noble friend had brought this important subject under the notice of their lordships. There could be no doubt that this fearful epidemic was about to repeat those ravages which it had committed in 1831-32, and again in 1848-49. It was taking exactly the same course, and it was selecting precisely the same localities, as in those former years. There had on these occasions been preliminary outbreaks of the malady, which, after having gradually abated, had been followed by attacks of ten times greater virulence; and there was but too much reason to fear that the same circumstances would recur during the present visitation. There was a lull now in the progress of the cholera, but there had been a similar lull in the years 1848-49, when the disease, after having fallen to five, four, and even one case a week in the metropolis, had eventually risen to as many as 2,000 cases a week. There was no reasonable ground for supposing that we should not be similarly visited upon the present occasion. The renewed attack which was at present impending over us would not be merely ten times, but twenty times more virulent than any which had ever before been experienced, not only in this country, but in any other part of the world. In 1848 and 1849, it was rare for persons to perish within twenty-four hours; but now it was not uncommon for death to take place within twelve, ten, and even eight hours. In short, hours were now as precious as days, and the neglect of a space of time which, in 1849, might have been retrieved, would in all human probability, in 1854, be attended with the certain loss of life. No ordinary exertions would enable the Board of Health to meet the impending evil: the most steady and energetic exercise of extensive and enlarged powers would be requisite. In very many instances the epidemic had on each occasion broken out in precisely the same localities; and we were utterly without any excuse for not having taken the necessary steps to purify the well-known original seats of the disease. It was a remarkable fact that wherever the houses in which it had first broken out had been examined—and they had in many instances been examined—it had always been found that there had been ample local causes for its attacks. They had either found in them cesspools, or they had found on the walls putrid and reeking matter waiting to enter into unholy alliance with the cholera for the destruction of human life. Their lordships could form no idea, from any description which he might give, of the abominations which rendered certain portions of our towns unfit to be the habitations of human beings—in fact, they could have no notion of the filth, the miseries, and the horrors of every kind which subsisted within a gunshot of the very house in which they were assembled. He believed that to establish a preventive to cholera there was no one thing more useful than a sufficient supply of pure water, not only for the purposes of cleanliness, but also for the purposes of general domestic use. The result of the unlimited supply of pure water in Hamburg had been such, he could state from his own experience, as to put a stop to the ravages of diseases of the skin, which previously, owing to the scarcity of good water, had, to a great extent, prevailed. The permanent and durable advantages of good drainage, good ventilation, and a sufficient supply of pure water, the better construction of dwelling-houses, and the great reduction of the numbers inhabiting these houses, could alone be of lasting advantage in putting an end to those evils which it was so desirable to eradicate. In order, however, to carry out these great works, considerable time and considerable deliberation would, no doubt, be requisite. The churchwardens in the various districts had much in their power with respect to procuring a good supply of water; but he was afraid that unless some central authority were appointed, which would compel these churchwardens to do their duty, the supply of water would continue to be no better than it had hitherto been. There were causes of disease at work in London as well as in all populous localities, which were well worthy of their lordships' attention—he meant those standing nuisances called slaughter-houses, cow-sheds, piggeries, and such like abominations. His lordship then adverted to the state in which Paris stood with reference to these matters. He had himself been over the whole of the city of Paris in search of nuisances, and had been much struck by the cleanliness—he might almost say the attractiveness—of the butchers' shops. There were also in the metropolis manufactories of solid manure. These establishments consisted of large yards, into which the cleansings of all the cesspools were conveyed, and kept there in a mass 20 feet high, until it formed one consistent and solid heap. Now that was a state of things which prevailed in the very heart of the metropolis, and by the existence of which he had not the slightest doubt thousands of human beings had been immolated. He believed that he had said enough to show their lordships what that state of things was for which they were called upon to provide a remedy. What he should propose with reference to the question of the removal of nuisances was, that the central authority should have power, after a certain time, to give orders that the works necessary to be entered upon should be carried out at the expense of the guardians. With respect to means of prevention, houses of refuge should be provided, not for those who had been attacked by the disease, but for those who continued in a state of health.

Earl Granville stated that the Secretary for the Home Department was in communication with both Lord Shaftesbury and Lord Harrowby, and with other persons, at this moment, requiring information as to the best mode of proceeding. The powers which had been given to the Board of Health for the last six months would, by an order in Council, be continued for another six months. The Home Secretary was at present considering what powers should be given to Government which would be efficient, and which would receive the sanction of public opinion, without interfering with the exercise of local authorities.

Lord Beaumont asked why the Board of Health had not indicted those persons who stored up manure and kept a number of pigs? They might be proceeded against at law for a nuisance.

The Earl of Shaftesbury said that under the Act the Board of Health had no such power. It was true that private persons might indict persons guilty of such nuisances, but the proceedings were slow and uncertain. A Bill ought to be introduced declaring all these abominable trades to be nuisances in a town, and in this manner they might be got rid of.

Notices of Books.

The Conservation and Improvement of Tidal Rivers. By EDWARD K. CALVER, R. N. London: Weale. 1853.

MR. CALVER has here set forth some general views on hydraulic engineering as applied to marine works, the result of personal observation and practice, and having more special reference to the Tyne. Although, as he says, the book is little more than an explanation of certain examples, rather than a statement of scientific deductions, it contains much that may be usefully studied. For a true system of river improvement he would look to the operations of nature, and he maintains that such a system would have for a primary doctrine,—"that tidal quantity determines sectional capacity nearly throughout the tidal development; that a decrease of one is surely followed by a decrease of the other, *and that this relation is not only coincident, but derivative;* next, that several leading theories are highly objectionable, inasmuch as they are opposed to common observation; and lastly, that river operators of the present day are divisible into two sections, and their systems may thus be classed. One is natural, for it is regulated by a judicious attention to the form in which the river has been received from the hands of Nature; the other unnatural, as it involves a radical change in its entire features. One in its character is ductile,

concentrating the power of the stream, but allowing its superficial range; the other inflexible, confining it within a space it was never intended to occupy. One is a conservating process, insuring the greatest improvement in the navigable condition of the river, without any sacrifice of power; the other is destructive, being the promotion of depth in the interior channel at the expense of the outlet, *and consequently of life itself.*"

We fully agree with him in saying that the subject is of national as well as local importance: the want of available harbours is more and more felt.

The Rambler in Worcestershire; or, Stray Notes on Churches and Congregations. By John Noake, Author of "Worcester in Olden Times," &c. Longman and Co. 1854.

THIS is the concluding volume of Mr. Noake's very pleasant and entertaining "Rambles," to which we have already drawn the attention of our readers. The author, who is a reporter for the *Worcester Herald*, here, as elsewhere, shows himself capable of something of a higher order of literary merit than that of mere reporting; and, although he tells us he does not wish to be spared, if we think him worthy of castigation, we claim no gratitude for not doing what he has taken care to give us very little opportunity for doing.

VARIORUM.

"The Russians of the South," by Shirley Brooks, is a small shilling volume of Longman's "Travellers' Library," recently issued, on a subject not only interesting to us all at this moment, but treated so as to sustain its interest. "Adventures in the Wilds of North America," by Charles Lanman, edited by Charles Richard Weld, is another work belonging to the same series, but in two small volumes, or parts, full of narrative and adventure. Messrs. Longman have also published the first part of a people's edition of Macaulay's "Critical and Historical Essays," contributed originally to the *Edinburgh Review*, to be completed in seven shilling parts. A pamphlet, by Lord Stanley, titled "What shall we do with our Blue Books; or, Parliament the National Schoolmaster," has been issued by Savill and Edwards, of Chandos-street. "Observations," by R. Pashley, one of her Majesty's counsel, "on the Government Bill for Abolishing the Removal of the Poor, and Redistributing the Burden of Poor-rate," is the title of a pamphlet just published by Messrs. Longman: it contains a proposal for more equitably redistributing the burden of poor-rate.

Miscellanea.

SCENERY AND COSTUME AT THE PRINCESS'S THEATRE.—In the revival of "Richard III." now being played at the Princess's Theatre, Mr. Kean appears to have attached more importance to the costume than to the scenery,—not that the latter has been neglected, but it has not that distinctive character which it was made to take in "Macbeth" and "Sardanapalus." The first scene, the Garden in the Tower of London, with grass-plot, dial, and terrace-wall is very nicely painted (by Gordon), and so are the Cloisters of Old St. Paul's, and some of the chamber scenes, with their tapestry hangings and fittings, by F. Lloyds. A clever and novel effect is produced in the Tent Scene, and the charge of spearmen and archers in the same act is exceedingly well managed. Still we do not hesitate to say that the most striking part of the revival is Mr. Kean's performance of *Richard*. It is a most complete and admirable performance.

VENTILATION OF THE HOUSE OF COMMONS.—The following have been appointed a select committee to consider of the best means of improving the ventilation of the house, the lobbies, and the libraries, and to report thereupon to the House as soon as may be:—Mr. Spooner, Sir W. Molesworth, Mr. T. Greene, Lord R. Grosvenor, Mr. Hume, Mr. Drummond, Mr. Baukes, Mr. Cayley, Lord J. Manners, Mr. C. Fortescue, Mr. W. Patten, Sir B. Hall, Mr. Bouverie, Lord Elcho, and the Marquis of Chandos. Lord J. Manners suggested that, as the House of Lords had appointed a select committee on the same subject, it would be advisable if the two committees could sit together as a joint committee, with a smaller number of members. He confessed he did not anticipate much benefit from their inquiry.

GAS IN THE PROVINCES.—In reference to a late note on Bridgewater, we observe one or two little circumstances which we may record. The Blackburn Gas Company lately met, and declared a dividend at the rate of 8 per cent. per annum, free of income-tax; when it was stated by the chairman, that although the company had been lately paying as much as 1*l.* 4s. per ton for cannel coal, which they got, for several years past, for 10s. 6d. a ton, they intended to *reduce* the price of gas to the consumers from and after the end of this month. At a meeting of the Wolverhampton Company, the price of coal was also referred to, and in reference to a statement made by the chairman as to a virtual reduction of price being given, as demanded in a consumer's circular, signed by four of the company's own directors, the company not intending to raise the price, although the price of coal had risen so high,—one of the shareholders remarked, that it was evident from this statement itself, that the price of coal had very little to do with the price of gas; for if they paid more for their coal, they got more for their coke; and that in reference to the chairman's assurance, that *when* the company could realise 10 per cent. profit, they would farther reduce the price, he considered that they would soon have 10 per cent. *if* they *now* reduced the price.

SOCIETY OF ANTIQUARIES, NEWCASTLE-UPON-TYNE.—The monthly meeting of this society was held on Wednesday in week before last, at the Castle of Newcastle-upon-Tyne, the Rev. Dr. Bruce in the chair, when an attack upon the society, in the *Newcastle Chronicle*, as a lifeless and profitless one, by Mr. Sidney Gibson, who was said to be a member, four years in arrears, was brought under the notice of the meeting. Mr. G. B. Richardson then read a paper on Sir John Marley and his descendants, some account of which appears in the *Gateshead Observer*. Mr. H. Hinde, in redemption of his pledge, again brought under consideration his proposal to urge the resumption of the printing of a selection of the national records, and read a memorial to the Society of Antiquaries in London, praying that body to be the medium of communication with the Government on the subject. The memorial was approved and adopted, and a committee was appointed to take charge of it, and adopt such measures as might be thought advisable for effecting its object. As Mr. Kell was about to proceed to London, it was proposed that he should be intrusted with the memorial for personal presentation to the society or its secretary. Dr. Charlton stated, in reference to the memorial to the trustees of the British Museum, adopted at the last meeting, that its prayer had not been acted upon, and the Faussett collection had passed into private hands, having been purchased by Mr. Mayer, a munificent citizen of Liverpool, with a view (it was understood) to throwing it open to the public in that city.

SANITARY LECTURE.—A lecture was delivered last week, at Bilston, by Mr. Wigginton, architect, on the "Homes of the Poor, and their several Relations to the Questions of Sanitary Reform." The lecture concluded by giving a sketch of the Metropolitan Association and its charters, explaining its workings and detailing some of its several extraordinary results, physical, social, and moral, backing them up by the excellent financial aspect of the association, caused in a main degree by the punctual payment of the rents, and the trifling deficiencies from bad debts. We are glad to hear that it is not at all unlikely that the president of the institution, the Rev. J. B. Owen, will take the matter up and make another branch of this association in the "black county."

THE SOUTH-EASTERN RAILWAY CRISIS.—A small sixpenny tract, addressed to the proprietors of the South-Eastern Railway, under this title, and with the signature "Lancastriensis," has been published by Cash, of 5, Bishopsgate-street Without. The writer takes the opportunity of the retirement of several of the directors to urge a total change of management, and blames the present directory for reducing the profits of this "highway of all Europe to the metropolis of the world" down to 3 per cent. and rendering it "a by-word of reproach with the public." He thinks that "their contemptible dividend is their own confession of incapacity." Ill-advised branch extensions are mainly blamed for this result, and even now he says the board are about to "construct a railway from a swamp at Lewisham to a gravel-pit at Bromley."

THREATENED STRIKE OF BRICKLAYERS AT LIVERPOOL.—At a recent meeting of the dock committee, the chairman stated that a communication had been received from the contractors for the new warehouse now being erected at the Stanley Dock, praying for a fortnight's delay of the works in consequence of being threatened with a strike of the bricklayers. The men now receive 4s. 8d. per day, and have demanded an advance to 5s. It was stated that the work is already twelve months in arrear. It was decided that no delay could be allowed.

THE NEW YORK INDUSTRIAL EXHIBITION.—A general report, with regard to the New York Industrial Exhibition of last year, has been presented to Parliament by the Earl of Ellesmere, Sir Charles Lyell, Mr. C. Wentworth Dilke, Mr. George Wallis, Mr. Joseph Whitworth, and Professor Wilson, the Commissioners deputed by the British Government to attend the Exhibition. After a statement of their arrangements for inspecting and reporting on the various classes of articles exhibited, they thus proceed:—"In its general character the Exhibition at New York may be said to be successful. The lessons conveyed in the contributions from Europe cannot, we believe, fail to exercise a beneficial influence over the taste, skill, and industry of the United States. There can be little doubt, that in nearly all essential points the Exhibition will prove to the intelligent and industrious artisans and enterprising manufacturers of America much more of an instructor in what has to be done, than an expositor of what has been done by them, for the latter can be alone fairly judged of in the manufactories." Certain departments were assigned to each member of the Commission, with the view of having a special report from each. In raw materials, the report on mining, quarrying, and mineral productions, maps, charts, &c. and philosophical instruments in connection with the latter, was undertaken by Sir Charles Lyell; whilst the report on minerals in their economic relations and metallurgical operations, chemical processes and products; substances used for food; vegetable and animal substances used in manufactures, including also tanneries, was to be prepared by Professor Wilson, together with a report on agricultural implements and machines; manufactures in mineral substances, cements, &c.; manufactures in animal and vegetable substances; miscellaneous manufactures; and also, the progress of scientific education in relation to industry. In machinery, Mr. Joseph Whitworth undertook to report on machines for direct use; manufacturing machines and tools; civil engineering; and on the character and action of the patent laws, and on the system of electric telegraphs, so extensively used throughout the States. In manufactures, the report on cotton, woollen, and worsted; silk; flax and hemp; mixed fabrics; leather (except tanneries); paper, printing, &c.; printed fabrics; tapestry, lace, and carpets; clothing; cutlery and edge tools; iron and general hardware; precious metals, jewellery, &c.; glass; ceramic manufactures; decorative furniture; and on the position of art education as applied to manufactures and the copyright of designs, was undertaken by Mr. George Wallis. The report on the section of the fine arts was assigned to Lord Ellesmere. Of these reports only two have as yet been printed; the others are, however, in a forward state of preparation. The two already presented to Parliament are by Mr. Wallis and Mr. Whitworth.

A NEW SAFETY MINING LAMP has been invented by M. de St. Simon Sicard, and patented both in England and in France. It is an adaptation of the oxy-hydrogen lime light, and, unlike the "Davy" lamp, is hermetically sealed when placed in the hands of the miners. By a supplemental apparatus, this lamp, it is also said, can be made to light the whole of the galleries of a mine, thus placing the means whereby these accidents take place entirely out of the reach of the unskilled pitman.

DWELLINGS FOR THE WORKING CLASSES.—A Society for Improving the Dwellings of the Working Classes has been formed, it appears, in Paris on a large scale, in connection with a committee in London. Its capital is to be 480,000*l.* of which 120,000*l.* will be raised in the first instance by an issue of 30,000 shares of 4*l.* each, the company, in consideration of that expenditure, receiving a subvention from the Government of 60,000*l.* The first buildings are to consist of lodgings for single men, to contain 1,800 beds, and of dwellings for about 600 families. Ultimately it is contemplated to extend the system to some of the principal provincial towns.

BRIDGENORTH CEMETERY COMPETITION.—The designs selected in competition for the erection of chapels, lodge, boundary wall, &c. for this cemetery are by Mr. George Truefitt, and Mr. James Edmeston.

THE STATUE OF RICHARD CŒUR DE LION.—"A." suggests one more site in addition to those already proposed, namely, the open space at the bottom of Waterloo-place, between the Athenæum and United Service Clubs. "Here the statue would not interfere in the least with the traffic, and would still be in one of the most frequented spots in London, and where there is no architecture to interfere with, as in the old Palace-yard."

WESTMINSTER BRIDGE.—We understand that the tenders received for the construction of Westminster-bridge are as follows:—

Meyers	£305,000
Crawshay	275,000
Mare	201,000

THE METROPOLITAN DRAINAGE QUESTION.—On the motion in the Commons for reading the Great London Drainage Bill, and after considerable discussion, adverse to the interests of the Bill, especially on the ground of the required power to tax the community, Lord Palmerston said, the Government were now going to re-organise the Commission of Sewers, and had matured plans, after due consideration, which he thought would be of advantage in the drainage of the metropolis. He thought these operations should be under the management of one single authority, acting in concert with the Government; and, moreover, that it might be possible to realize by this drainage some commercial advantage, in order that the profit arising from such might be applied to the diminution of the expenses incurred. The present Bill had no chance of being carried through committee, in consequence of the guarantee clause; and, as far as he was concerned, he should advise that the Bill be negatived. In reply to a question by Lord J. Manners, as to what plans his lordship referred to, Lord Palmerston replied, that he referred to the great arterial lines of drainage, which were to run parallel, or in some relation to the course of the Thames. The point on which his opinion differed from those of the commissioners was as to the detailed manner of constructing the subordinate drainage. It was well known that a controversy was waged as to the nature and size of the sewers to be constructed for the purposes of drainage. The motion for second reading was then negatived without a division.——In reference to the general question, and to the sewerage of Charing-cross and the Strand, a correspondent of the *Morning Herald*, Mr. G. K. Corfield, while alluding approvingly to the Home Secretary's decisive conduct towards the Board of Sewers, but doubting that Mr. Fitzroy's letter to the Board had reference only to the house-drainage, and that no particular system as to the main drainage was yet matured, suggests the experimental adoption of Mr. Bardwell's system of rapid filtration by gravitation, aided by atmospheric or hydraulic pressure, to the sewage of the Essex-street and Northumberland-street sewers, and the disposal of the separated solid sewage to the market-gardeners. At 3*l.* a ton, he says 10,000*l.* a year would thus accrue.

THE EDINBURGH OLD CITY WALL.—The Crown authorities, we learn, have decided on taking no proceedings against any party with regard to the late accident at Leith Wynd. The dean of Guild Court has ordered the removal of about 150 feet of the wall north of the part which had fallen. This portion of the wall belongs to the city, and on evidence that its present state is dangerous to the public, the court has ordered that it be reduced to the height of 4 feet from the level of Leith Wynd, and that the embankment which belongs to the North British Railway Company, shall be sloped at such an angle as to prevent any fall of earth from taking place.

THAMES EMBANKMENT BILL.—On a motion for postponement of the second reading of the Thames Improvement Bill till 2nd May next, in consequence of the engineer's absence abroad, some discussion took place in which objections were made to the arbitrary character of the Bill, which proposed to embank both sides of the river from London-bridge to Westminster-bridge, and run a railway along the whole of it, all claims on the bed of the river to be foreclosed, if not given in within three months from the passing of the Bill. Mr. Wilson said the Government objected to its provisions, and it was resolved to postpone it for six months, or, in other words, to throw it out.

INSTITUTE OF BRITISH ARCHITECTS.—The paper to be read on Monday evening next, the 20th instant, is on "The Drainage of Buildings and Streets in the Metropolis," by Mr. Boulnois. It will doubtless serve as a peg for a long discussion.

THE WORKINGS OF STRIKES.—Previous to the strike, upwards of 30,000 operatives were employed in the cotton manufacture at Preston, and the production of their labour, when trade was in full activity, was estimated at more than 20,000 miles of calico per week. The average of the wages amounted to between 1,600*l.* and 1,800*l.* per week. In consequence of the strike, upwards of 20,000 of the hands have been out of employment for twenty-four weeks, or nearly half a year; the effect of which upon the Manchester market is, that the supply of shirting gives a weekly decrease from Preston of 70,000 pieces. The "turn-outs" have subsisted for the last twenty-four weeks on the earnings of the artisans of neighbouring towns, from whom they have received on an average of 3,500*l.* per week, 84,000*l.*; upon which they have managed to feed their delegates and eke out a miserable subsistence for themselves; while their own losses from wages, assuming the low average of 12,000*l.* per week, already amounts to 288,000*l.* to say nothing of the losses which the masters have incurred from the stoppage of their works, and the permanent damage which the town has sustained.—*Manchester Courier.*

RAILWAY COLLISIONS.—Some time since a correspondent, Mr. E. G. Muddoch, suggested a mode of checking the force of collisions by means of truck fenders fitted up with gutta percha tube cushions and a powerful air apparatus, as already described. The same correspondent now suggests as an improvement that the cushions at the end of each truck be supplied with a double set of concave spring ribs, like the spokes of a wheel without the tire; these, he remarks, being in exact conformity would form a series of arches counteracting each other like the springs of a carriage, and with the air apparatus and tubing could not fail to offer a most powerful resistance to concussion.

FALLING IN OF A RESERVOIR AT WESTON-SUPER-MARE.—A large portion of the eastern walling of the huge tank or reservoir of the Weston-super-Mare Water Works Company, fell in lately, in consequence, it is alleged, of confined air having been forced down the back of the wall during the process of "puddling," which burst forth with the noise of artillery.

FIRE IN MR. BIELEFELD'S PAPIER MACHE WAREHOUSE.—The upper part of the premises in Wellington-street North, in the Strand, occupied by Mr. Bielefield, were burnt on Thursday night in last week, and the lower part damaged both by water and fire. There were 10,000*l.* worth of property, it is said, in the premises destroyed, when last the stock was taken.

PARTNERSHIPS WITH LIMITED LIABILITY.—At a meeting of the council of the Liverpool Chamber of Commerce, lately, a resolution was adopted by a vote of eleven to eight, affirming the principle set forth in the report of their special committee—viz. "That the present law, in so far as it prohibits the formation of partnerships with limited liability, is unsound, and an alteration in this and other respects is urgently required." The attendance of directors was larger than usual, and the council sat three hours and a half, during which a very animated discussion took place. A special meeting of the chamber is to be convened on an early day, for the discussion of the council's resolution.

HOUSEHOLD SMOKE PREVENTION. — Dr. Neil Arnott has recently effected improvements upon the principle of Cutler's stove. The supply of fresh coals is put in below, the coked cinders left from the previous day's consumption being piled at the top and igniting readily. A rod attached to the bottom of the grate (which is moveable), descending from it perpendicularly into the hearth, is raised as occasion requires, by a lever, thus carrying the coals upwards into contact with the superincumbent embers. The connection between the grate and the chimney shaft has a funnel-shaped form, terminating in a throttle valve, which can be regulated to any size, and gives control over the current of air passing up into the chimney. With this grate 18 lbs. of coal, it is said, will keep a moderate-sized room at a temperature of 65 degrees for twenty-four hours.

THE IRON TRADE.—There has been a partial falling off in the export trade during the last month or six weeks, but no diminution in the make of iron. Increased orders from France are anticipated. No change in prices has taken place since last quotation. The malleable-nail casters of Birmingham have struck for a rise in wages, and it is expected that the strike will spread throughout the district. It is said to be the unsettled feeling manifested in such strikes which has induced the Government to withdraw the national contracts for fire-arms from Birmingham from a fear of idleness at critical moments.

COMPARATIVE COST AND ADVANTAGES OF IRON AND WOODEN SHIPS.—Mr. James Hodgson, of Liverpool, who states that he was the builder of one of the first iron sailing ships, and of the first iron screw steamers running between Liverpool and several foreign ports, has issued a circular in which he states some of the alleged advantages of iron over wooden ships. From documents quoted it appears to be considered that a well-built iron ship does not depreciate more than 2 per cent. per annum, and that with good care in cleaning and painting the durability of iron vessels will be very great, and their rate of speed considerably beyond the average. The managing owner of one built on Mr. Hodgson's patent, however, starts a serious question. "Would it not be well," he says, "to give more longitudinal strength in some of the very long vessels; for do not the rivet holes in the vertical joints of the plates, and in the rivetting of the bulkhead, almost cut the vessel in two?" Was it not on this account, we may ourselves ask, that some iron ships have actually broken up suddenly into two halves? Surely something has already been done, however, to remedy so serious a fault. Yet the question quoted is dated no further back than June, 1851, and if obsolete, why is it quoted at all, especially in such a circular? An iron ship of 1,000 tons is stated to cost only 13,500*l.* a wooden one 16,500*l.* and in cost of working such ships there is said to be an annual total of 2,295*l.* in favour of the iron ship.

SURVEYORSHIP, MERCHANT TAILORS' COMPANY.—The retirement of Mr. Beachcroft has caused a vacancy here, for which of course there are several candidates. Mr. John Shaw and Mr. I'Anson are amongst those most spoken of.

MALLEABLE IRON CASTINGS.—A patent has been taken out by Messrs. Robertson and Co. of Fleet-street (a communication), for an improved method of producing malleable castings at one operation. The iron employed may be either scrap, wrought, bars, or plates, cut in small pieces: it is to be melted in small crucibles covered in, and to the iron is added from ½ to 1 per cent. by weight of charcoal, or other carbonaceous matter, 1 per cent. of manganese, and 1 per cent. of muriate of ammonia. This mixture is kept melted for about three hours, cast in chill moulds, as railway wheels, or other similar large castings requiring great strength, and subsequently turned, hammered, or forged, as may be required.

ABERDONIAN INDUSTRY.—Two active Aberdonians who arrived at Oban for the emigrant ship *Themis*, says the *Banffshire Journal*, "finding that the ship would take six weeks to repair, heard of a granite quarry in operation at Macniven's Isle. They started, and found employment; and as they are excellent stone-dressers, they earn 30s. per week. These are the class of men who will give a standing in progressive and persevering industry to the future empire of Australia. They will clear 6*l.* a-piece while the vessel is repairing." Characteristic and exemplary though this be, we mistake the sharpness of these Aberdonians if they do not also make the contracting shippers "pay up" for their delay and breach of contract. "Had we been six weeks sooner in Australia," they will say, "as by your agreement to sail we ought to have been, we would have been earning something more like 6*l.* a day at the gold diggings than 30s. a week in the granite quarry: you must therefore be our diggins for this six weeks' loss, so down with the dust."

TENDERS

For New Baptist Chapel, School-room, and Minister's house, Commercial-street, Whitechapel:—

Locke and Nesham	£8,500	0	0
Wm. Cubitt and Co.	8,238	0	0
Gammon	7,537	0	0
Little and Son	7,468	0	0
Clever	6,900	0	0
Wood and Son	6,779	0	0

For Chapels and Lodges, Lambeth Burial-ground, Tooting. Messrs. Wehnert and Ashdown, Architects. Quantities supplied:—

Rowland and Evans	£5,330	0	0
Thos. Howard	4,985	0	0
Nicholson and Sons	4,795	0	0
G. J. Soper	4,754	0	0
H. W. Cooper	4,538	0	0
John Jeffery	4,500	0	0
Geo. Myers	4,450	0	0
W. Reading	4,439	0	0
Haward and Nixon	4,377	0	0
John Glenn	4,371	0	0
J. Clever	4,257	0	0
Thompson and Crosswell	4,179	0	0
Wm. Higgs	3,999	0	0
Higgs and Cullingford	3,969	0	0
Hopkins and Roberts	3,960	0	0
Thos. D. Carter (accepted)	3,927	0	0

For a new building in Cannon-street West, for Messrs. Kirby, Beard, and Co. Mr. Geo. Elkington, Architect:—

Locke and Nesham	£8,517	0	0
Willson	8,435	0	0
Myers	7,800	0	0
J. and J. Coleman	7,640	0	0

For a building to contain artists' studios, on the north side of All Souls' Church, Langham-place. Messrs. Deane and Bailey, Architects. Quantities supplied:—

Wilson	£2,866	0	0
Nicholls	2,348	0	0
Matthews	2,297	0	0
Hopkins and Roberts	2,090	0	0
Thompson and Crosswell (accepted)	2,079	0	0

For a Wesleyan Chapel at Effingham, Surrey:—

	In Brick.			In Flint.	
Walker and Jefferies, Leatherhead	£329	10	.....	£318	10
Killick, Dorking	290	0	.....	270	0
Cropley, Bookham	284	0	.....	262	0
Spicer and Batchelor, Leatherhead (accepted)	283	0	.....	259	0

TO CORRESPONDENTS.

"Clear-well," "W. and A." "T. P." "J. B. L." "R. D. C." (several letters already in type). "E. B." "E. P." "W. H. T." "J. S." "T. G." "R. R." "F. W." "J. C. P." "Clericus," "B." "J. R." "Gamma," "J. A. H." (we cannot assist), "R. T. S." "J. R." "W. V. P." "W. L." "T. J. P." "J. D. D." "F. W." "F. H." "J. H." "W. P." "J. P." "A Young Mason." "J. A. P." "M. H." "J. G." (book has reached us), "Enclosed Porch" (a moot point. May be arranged so as not to "require same thickness of wall as main building.")

"*Books and Addresses.*"—We have not time to point out books or find addresses.

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